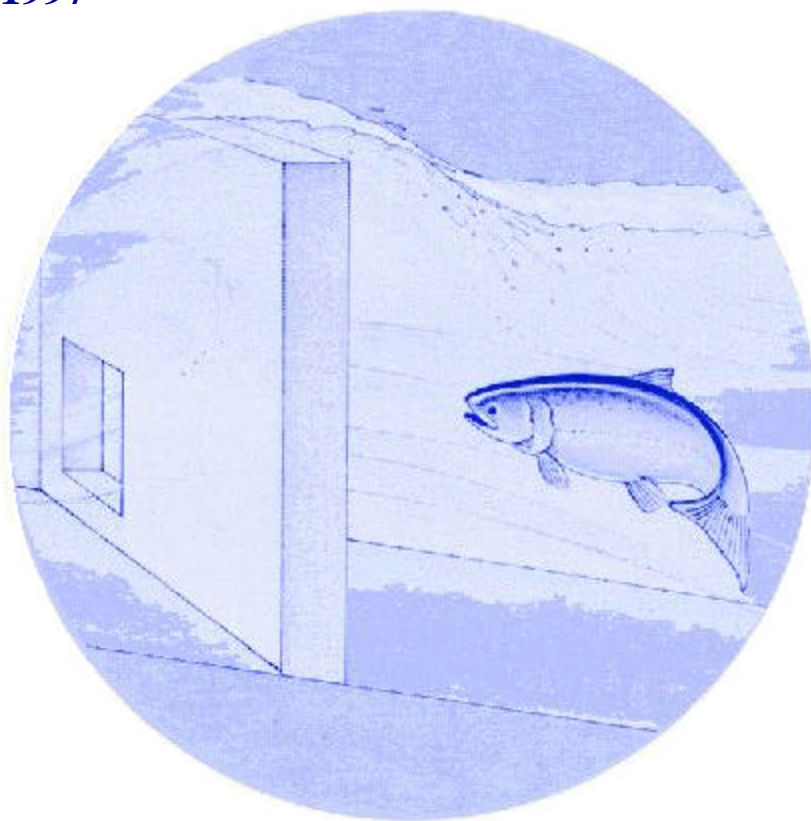


Framework for Certification of Fish Propagation, Protection and Monitoring Facilities

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FRAMEWORK FOR CERTIFICATION OF FISH PROPAGATION, PROTECTION AND MONITORING FACILITIES

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Executive Summary

A conceptual framework for certification of fish production and monitoring facilities including software templates to expedite implementation of the framework are presented. The framework is based on well established and widely utilized project management techniques. The implementation templates are overlays for Microsoft Professional Office software products: Excel, Word, and Project. Use of the software templates requires Microsoft Professional Office.

The certification framework integrates two classical project management processes with a third process for facility certification. These processes are: (1) organization and definition of the project, (2) acquisition and organization of project documentation, and (3) facility certification. **The** certification process consists of systematic review of the production processes and the characteristics of the produced product. The criteria for certification review are the plans and specifications for the products and production processes that guided development of the facility. The facility is certified when the production processes are operating as designed and the product produced meets specifications. Within this framework, certification is a performance based process, not dissimilar from that practiced in many professions and required for many products, where an authority (e.g., state board, professional society) recognizes that an individual, a process, or a product meets professional/industry standards of performance. In the case of fish production facilities, the certifying authority may be diffuse, consisting of many entities acting through a process such as NEPA. A cornerstone of certification is accountability, over the long term, for the operation and products of a facility. This is particularly important for fish production facilities where the overall goal of the facility may require decades to accomplish.

A hypothetical project is used to illustrate implementation of the project framework, beginning with the project's conceptualization and proceeding through certification of a commercial fish production facility (Happy Rainbow Trout Farm).

The first process of the framework, organization and definition of the project, documents the goals, objectives, organization, and management authority for the project. All of the information required for this process should be available in existing project documentation. Project organization identifies the project authority structure which typically consists of a sponsor or owner, a project manager, and a project management team, in descending order of authority. Project definition consists of documenting the production processes and specifications for the facility's product.

The second process of the framework, acquisition and organization of project documentation, provides step by step guidance for obtaining, and organizing project documentation. Document acquisition and organization is followed by assistance in abstracting the essential elements from project documentation required to plan, implement, and track a project through certification. A series of software templates are provided to expedite the second process. The templates are supported by a user's manual. **In** addition to providing a convenient means for organizing project documentation, the software templates also provide the means to revise elements of project documentation as necessary to facilitate certification,

The third process, facility certification, is also supported by software templates to expedite implementation. Facility certification includes three linked sub-processes: documentation, commissioning, and deficiencies audit, which may require several iterations before certification is achieved. Documentation includes the identification, acquisition and review of all project information and data relative to production processes and output characteristics. Commissioning involves operating the facility under actual working conditions. Deficiencies auditing consists of review of production processes and facility output, followed by identification of deviations **from** specifications and development of deficiency resolution plans as needed. Certification is achieved when a commissioning trial is completed without observation of deficiencies.

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Introduction

A project for development of a new facility, or modification of an existing one, follows a logical sequence of steps **from** planning through completion. The project steps are:

- (1) Establish specifications for the proposed facility's physical plant, operations, and products (outputs);
- (2) Organize, plan, and manage the project; and
- (3) Review and inspect the completed **facility's** physical plant, operations, and outputs.

At each step of facility development or modification, a project manager monitors the project to ensure that it remains on target- that is the capability of the of the facility that is being developed adheres to the plans and specifications which were agreed to between the project **sponsor/stakeholder** and project management. The approach to **managing** a project and to inspecting its operation and products is generic and therefore applicable to any project, whether it be development of a computer software program or a fish production facility. Where the output (i.e., product) ~~of~~ facility and work process is critical – such as that of a medical testing laboratory – a rigorous process known as certification is required. The facility development or modification is not considered complete until the facility, its operations, and its output (i.e., work products) have been rigorously reviewed and determined to meet specifications. Only when the auditing and commissioning elements have determined that all **facets** of the **facility** meets specifications is the facility certified. Thus certification ensures that the facility and its operations, in addition to the work product itself, meet specified standards.

Certification is a performance based process where an authority (e.g., state board, professional society) recognizes that an individual, a technical function, or a product (i.e., output) meets professional/industry standards of performance, specified by the authority. Certification is a very common process in many sectors of the economy. For instance, in the health care sector, practitioners in specialized areas (e.g., doctors, radiologists, and nurses) are certified prior to being licensed to practice. Medical facilities, inclusive of their specialized test equipment and operating personnel, are continually audited and re certified for their operational capability and health care outputs. Engineers must pass **an** examination before they can sign construction drawings, and

lawyers must pass a bar examination before receiving a license to practice law. Certification in these cases is an element of quality control and quality assurance that a practitioner is operationally capable and generates an output or service that meets industry and/or public safety Standards.

In the commercial fisheries industry, certification is also familiar. Fishing vessel operators, fish processors, and fish storage facilities are all subjected to licensing requirements that mandate audits of their physical plants and operations. However, the public sector of the fisheries industry (e.g., fish propagation, protection, and monitoring) lacks certification as a process for assuring operational capability and product quality. The lack of certification in this industrial sector is probably one of the major factors contributing to the failure of many fisheries projects and facilities to produce the outputs (i.e., products, information) for which they were initially designed. The process elements (i.e. auditing, testing, commissioning) required for certification of fisheries facilities do not differ markedly **from** those of other industrial facilities and professions.

The processes and procedures required for certification of a fisheries facility are the **in-**depth focus of the framework described in subsequent sections of this report.

The Project Framework And Processes- Background

Since certification of fisheries facilities are not the norm, a framework for developing a certified facility is proposed for consideration and implementation by the **sponsor/stakeholders** of new development or modifications of fisheries facilities. This proposed framework consists of three major processes, as shown in Figure 1 (Page 3). This framework is a marriage of classical project-management concepts and processes with a **certification** process often used in industry sectors where specified capabilities and outputs are critically important. The following hypothetical scenario, the Happy Loch Rainbow Trout Farm Project, illustrates a project beginning with its conceptualization and moving through the sequence of processes for developing a certified fisheries facility.

The Happy Loch Rainbow Trout Farm Project

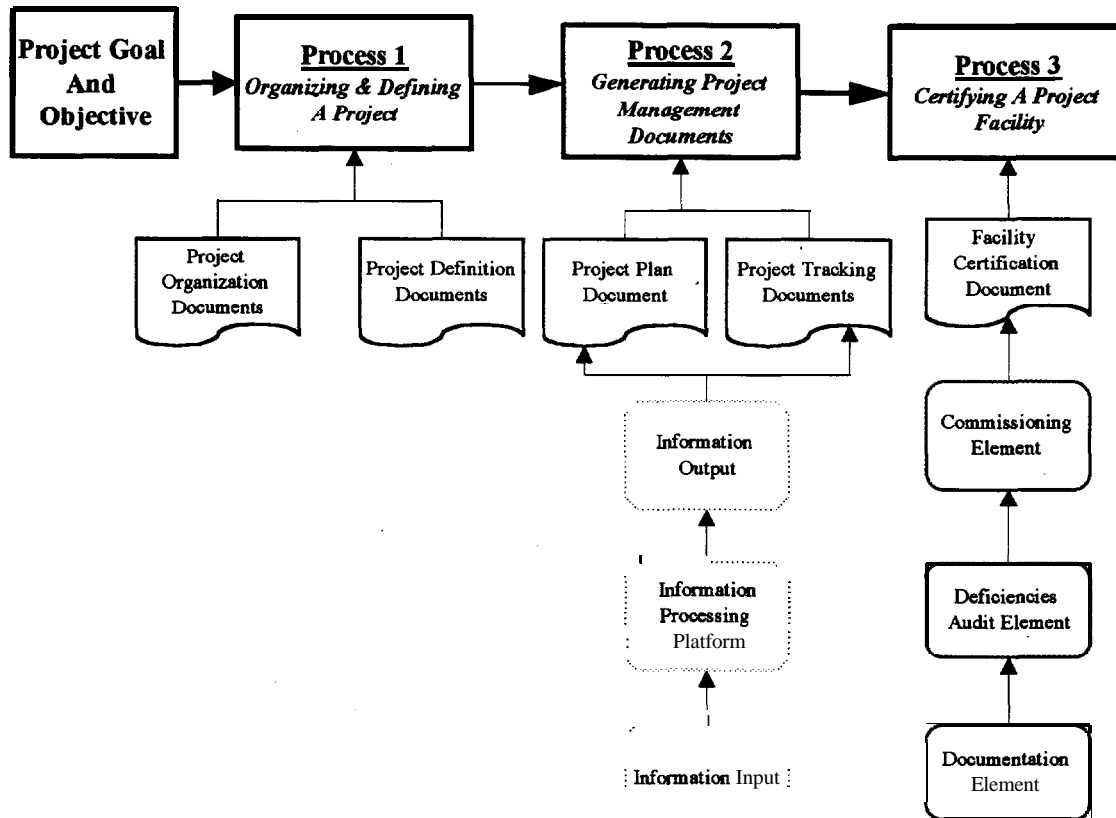
Project Goal, Objective, and Strategy

Mr. Robert Fish (**Sponsor/stakeholder**) has 17 acres of land, called Happy Loch Estate, with excellent water resources for propagating rainbow trout. Mr. Fish is aware that there are 25 privately owned “U-Catch” fishing ponds within a **30-mile** radius of Happy Loch Estate with a demand for cat&able rainbow trout. Mr. Fish sets a **goal** of

establishing a profitable business on Happy Loch Estate with the objective of producing catchable rainbow trout, using the Estate's land and water resources. Mr. Fish conducts

Figure 1

An Overview For The Processes Of The Project Framework In Developing A Certified Facility



comprehensive studies on the feasibility of producing catchable rainbow trout for private sale. He decides on a strategy for achieving his goal and objective (i.e., a profitable business and the production of rainbow trout) through operation of a rainbow trout propagation facility.

Process 1: Organizing & Defining the Project

Mr. Fish forms an organizational structure called Happy Loch, Inc., for making and implementing the decisions necessary to construct and operate a rainbow trout propagation facility, toward achievement of his goal and objective. He knows that his client base requires catchable rainbow trout (i.e., output) with the following physical attributes: 100-150 mm, 180-220 g, with pink flesh. These physical attributes constitute the specifications of the output that must be generated by his propagation facility if it is to compete in the market for private sales of catchable rainbow trout.

Process 2: Managing the Project

Based on their goal, objective, strategy, and specified facility output, Happy Loch, Inc., retains Mr. John Workman as Project Manager. Mr. Workman selects and hires a management team which plans, implements, and manages the project to (1) develop Happy Loch's land and water resources, (2) construct a propagation facility, and (3) train personnel for operating the facility to produce catchable rainbow trout. After setting up and coordinating a management team, Mr. Workman and his team **draft** a comprehensive Project Plan for managing tasks and associated task resources for constructing and staffing a rainbow trout propagation facility. Mr. Workman presents the project plan to Mr. Fish for approval. Upon Mr. Fish's approval of the Project Plan, Mr. Workman and his team commence the scheduling and tracking of all task activities for the Happy Loch project. Mr. Workman and his team oversee construction of the facility, testing and shakedown of the physical plant for operational readiness, and training of the facility's operations staff

Process 3: Certifying the Project Facility

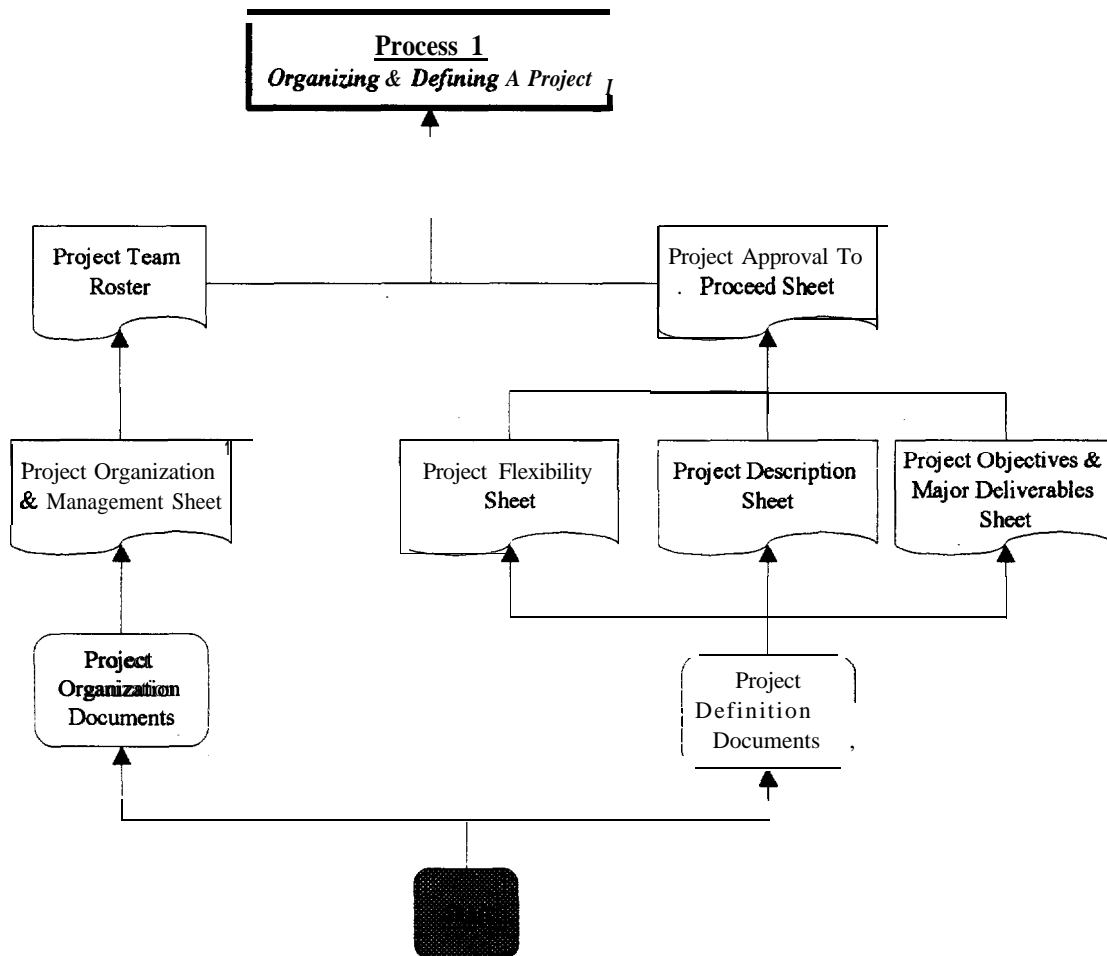
Once the facility and staff of the Happy Loch Rainbow Trout Farm are operationally ready, the certification process is initiated to answer the following two questions: Does the facility meet all operational specifications? Does it produce the specified product (i.e., cat&able, pink-fleshed rainbow trout, **100-150 mm**, 180-220 g)? Mr. Workman manages the certification process to assure Mr. Fish (owner) that the facility operations and its output meet all specifications and external regulations. Upon successful completion of the process, the Happy Loch Rainbow Trout Farm is documented as **certified**.

The following sections describe the general approach and the necessary documentation for each process within the project framework, from conceptualization through certification. All documentation should be housed in the ***Project File***, with all decisions and modifications communicated via ***the Project Workbook***. Maintenance of the Project File and Workbook is the responsibility of the Project Manager. The Project Workbook serves as the official reference base for the project.

Process 1- Organizing & Defining the Project

Process 1 of the project framework, as shown in Figure 2 (Page 5), entails the drafting and completion of documents used to organize and define the project.. ***The organization*** documents impose an institutional structure for strategic management of the project, from

Figure 2
Process 1 - Organizing & Defining The Project



its definition to its certification. *The definition* documents present the premise(s) on which the project objectives and strategies are organized and tracked, from conceptualization through certification.

Project Organization

A project's hierarchy is organized, in descending order, as **Sponsor/Stakeholder**, Project Manager, and Project Management Team. This project management structure is articulated by the **Project Organization & Management Sheet** (Appendix 1, Fig. 1, Page 23). This document identifies the critical project participants and their specific roles and responsibilities. The project **Sponsor/stakeholder** and Project Manager review, agree on, and corroborate the information on this spreadsheet. A formal letter (or memorandum) is then communicated to all project participants describing in detail their positions, roles, responsibilities, and task assignments.

The Sponsor/Stakeholder of the project provides the authority, capital financing, strategic direction, and approval for all aspects of development and implementation of a project facility, either new or modified. This **sponsor/stakeholder** may be either an individual (e.g., sole proprietor) or a collective of individuals (e.g., private corporation) and/or an institution (e.g., public agency). The **Sponsor/stakeholder** is essentially the focal point for all project decisions that fall beyond the scope of the Project Manager. The **sponsor/stakeholder** has the following responsibilities:

- Appoints a Project Manager
- Approves project objectives and their scope (tasks, schedule, budget)
- Acquires project financing
- Provides strategic direction
- Sets project priorities
- Approves project modifications
- Resolves project conflicts
- Monitors the project environment

The Project Manager is selected by the **sponsor/stakeholder** and given the authority to **define**, implement, and oversee all methods, protocols, and procedures for **planning** and tracking the project. The responsibilities vested in the Project Manager by the **Sponsor/stakeholder** include:

- Preparation and implementation of a Project Plan (with Owner's approval)
- Selection of a management team (both core and extended members)
- Assurance that all team members understand and accept their responsibilities
- Expenditure of project resources consistent with the Project Plan
- Negotiation of task activities and performance of management team members
- Coordination of all project management and technical decisions
- Prioritization of all task activities
- Analysis and monitoring of project performance (actual vs. planned)
- Provision of periodic project status reports to the **Sponsor/stakeholder**
- Arbitration/resolution **of conflict** and interface problems.

In terms of professional and personal qualities, the Project Manager must:

- be an effective motivator and communicator,
- be familiar with fisheries (propagation, protection and/or monitoring),
- comprehend standard practices and processes of project management,
- have excellent organizational skills,
- have a basic understanding of all project technologies,
- be a generalist rather a specialist,;

- be goal-oriented,
- be willing to challenge internal and/or external project obstacles;
- be committed to the project and well respected by peers.

A candidate for Project Manager communicates to the **sponsor/stakeholder** that he or she has sufficient time to assume overall management of the project. The **Sponsor/Stakeholder** and the Project Manager mutually understand and agree on the role, authority, and responsibilities of the Project Manager. To this effect, a formal letter or memorandum is communicated to **all** project participants.

The Project Management Team, selected by the Project Manager, facilitates the implementation and completion of all task activities set forth in the Project Plan. Team members *are* classified *as* either a core *team member* or *an extended team member*. A *core team member* reports directly to the Project Manager and is responsible for making major decisions and recommendations for a particular, task activity. *An extended team member* reports to the Core Team Manager and provides specific expertise for accomplishing a task activity. A Management Team member should obviously be a team player who is personally committed to the success of the project, who is technically competent in an assigned task responsibility, and whose expertise complements (but does not overlap) the expertise of other team members.

A **Project Team Roster** (Appendix 1, Fig. 2, Page 24) is generated and distributed by the project manager to all project participants. The project team roster contains and is organized accordingly to: team member name & title, project role (s) & task activities, telephone & facsimile numbers, and postal & E-mail addresses.

Project Definition

The process of defining a project for developing a new or modified fisheries facility and for specifying the facility's output is articulated in a sequential series of project decision sheets:

- (1) Project Objectives & Major Deliverables Sheet,
- (2) Project Description Sheet,
- (3) Project Flexibility Sheet,
- (4) Project Approval-to-Proceed sheet.

The Project Objectives & Outputs Sheet (Appendix 1, Fig. 3, Page 25) describes each objective and its general description, scope of task activities, the time-frame (from start-up to

completion), resource type and estimated cost, and completion criteria and dates. The statement of each objective should be expressed clearly and succinctly, in ordinary English (no technical jargon or buzz words) to communicate to all project participants of various disciplines (**sponsor/stakeholder**, project manager and management team; scientific/technical staff). The expected output(s) of each objective is described according to a set of output attributes (qualitative characteristics). Each attribute is then assigned a specification (numerical boundaries of those attributes).

The Project Description Sheet (Appendix 1, Fig. 4, Page 26) is a comprehensive project synopsis, perhaps several pages in length. The synopsis includes a short Executive Summary that describes the overall project, followed by the project's purpose statement, its inclusions & exclusions, strategic alignment of tasks and milestones, completion criteria, dependencies (commitments & dates of commitment), staffing requirements (type, skills & experience, certification), equipment & technology requirements, and risks associated with implementing and not implementing the project. The following questions can assist in drafting a Project Description Sheet:

- (1) What are the project objectives and constraints to achieving the goal?
- (2) Why should the project be undertaken at this time?
- (3) What are the indicators of project completion?
- (4) What are the indicators of project success?
- (5) What are the underlying assumptions of this project?
- (6) What are the constraints to implementing the project?

The Project Flexibility Sheet (Appendix 1, Fig. 5, Page 27) assists the project management team in assessing and determining the overall flexibility of the project. Three critical elements of each objective-i.e., scope (summary tasks & subtasks), time-frame (scheduled start-up & completion dates), and resources (human, financial, material)-are characterized according to a flexibility *scale*. *This scale* ranges from *least flexible* (constraints which cannot be over-ridden): to *moderately flexible* (constraints can be *minimized*), to *most flexible* (constraints can be over-ridden in the context of the other elements). This provides an indicator of the pliancy and adaptability within and among the project objectives.

The Project Approval-to-Proceed Sheet (Appendix 1, Fig. 6, Page 28) is the culmination of concurrence and approvals to the previous three sheets, by the project management hierarchy. **It**

provides a systematic process for approval and disapproval of critical information contained in these sheets by the **sponsor/stakeholder**, project manager, core team manager, and extended team manager. Their approval and/or disapproval are based on the critical information contained in the Project Objectives and Outputs Sheet, the Project Definition Sheet, and the Project Flexibility Sheet. The approval process begins with the review of the sheets by the core- and extended-team managers. Conditions (i.e., operating assumptions) and recommended changes, if any, may be attached to the managers' approvals, and are forwarded to the project manager for consideration and action. Next, the project manager reviews the sheets; considers the conditional approvals and recommended changes forwarded by his subordinate managers, resolves any conflicts **in** those conditions and changes, and then conveys his approval or disapproval, with conditions and changes attached, to the **sponsor/stakeholder**. Subsequently, the **sponsor/stakeholder** reviews the sheets and, in consultation with the project manager, negotiates and finalizes resolution of all conditions and changes. When the **sponsor/stakeholder** is assured that the sheets fully articulate the intended project objective(s), operations, and specified output(s), he or she signs the Approval-to-Proceed Sheet; and a copy of which is sent to all project participants with a memorandum of understanding.

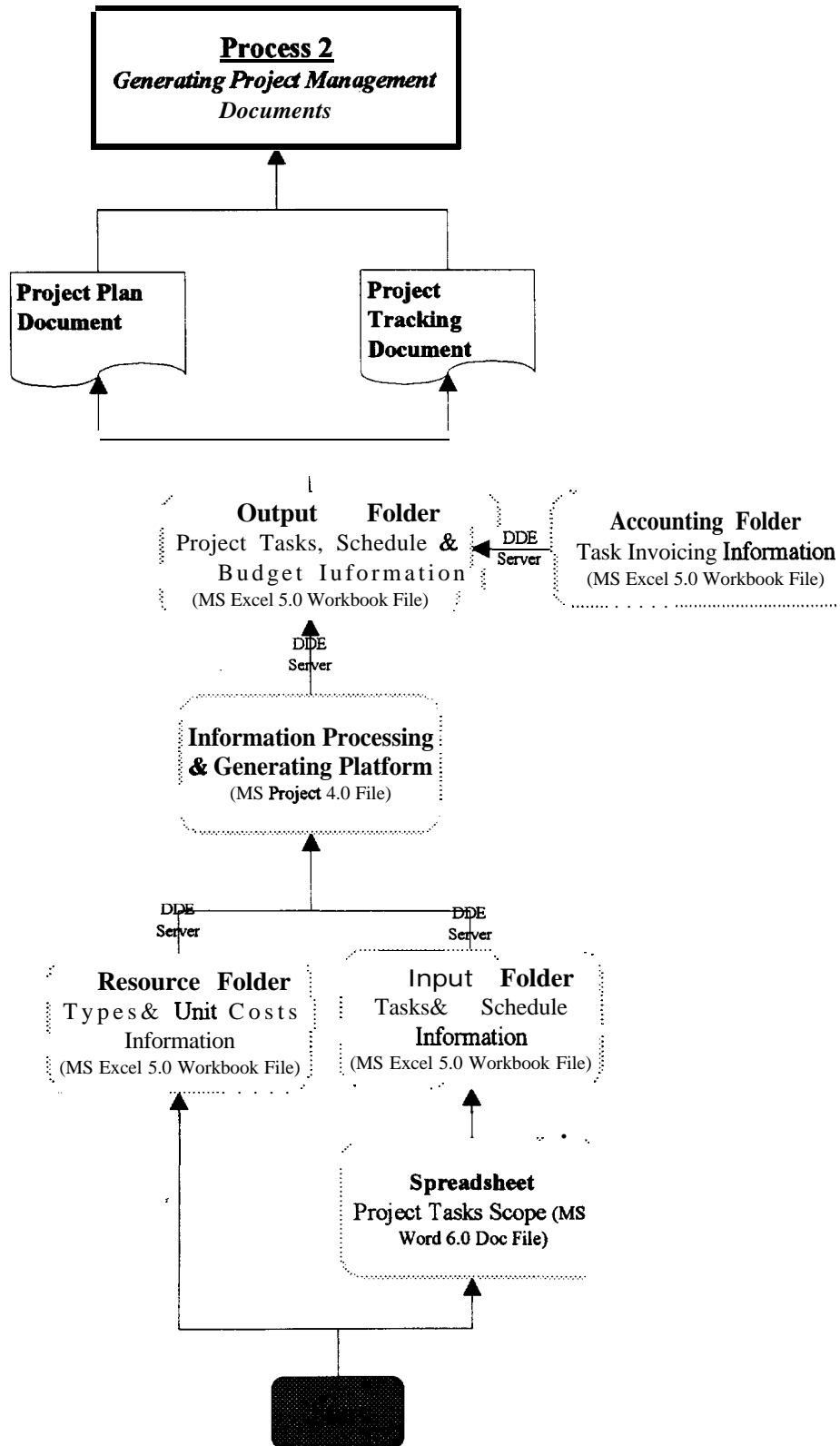
These four sheets (Appendix 1, Figs. 3-6, Pages 25 - 28) effectively institutionalize the development project, in terms of defined objectives, operations, and outputs. Project institutionalization (i.e., making all project elements part of a structured and well-established system) is critical to maintaining coherent and logical bridges within and among all three processes of the project framework. All sheets and associated communications among project participants are entered into the Project File and distributed to all participants for inclusion **in** their Project Workbooks.

Process 2- Generating Project Management Documents

Process 2 of the project framework, as shown in Figure 3 (Page 10), guides the development of the Project Plan. The Plan serves as the action document and outlines the task activities, start-finish dates, and resources (type and budget) and for certification of a project (i.e. fisheries facility), as articulated in the Project Description Sheet (Process 1; Appendix 1, Fig. 4, Page 26). Process 2 is also the mechanism for generating project management and tracking documents, such as a **Gantt** chart and **financial** spreadsheets. A User's Manual explains the computer software programs and template files for generating these documents (See Appendix 2, Pages 34 - 53).

Figure 3

Process 2- Generating Management Documents For The Project



Project Plan

The Project Plan facilitates the discipline and attention to detail that are necessary to manage and track the various elements related to the objectives, operations, and outputs articulated **in the Project Objectives & Outputs Sheet** (see Appendix 1, Fig. 3, Page 25). The Project Plan lays out the scope of each task (supra-, summary, and subtask), its start-finish dates, the milestones to be met, and the necessary resources to complete each sub-task.

The project **scope** outlines the task activities required to undertake and complete the project; it provides a hierarchical listing (Work Breakdown Structure) of **supra/summary** tasks and underlying **subtasks** that facilitate the achievement of a project output and/or milestone (a benchmark of achievement). The project **schedule** is the time-frame (duration) for conducting and accomplishing tasks and milestones; it includes a start date and a finish date. And project **resources** are specific people, equipment, and materials necessary to complete each **subtask**. Each resource has an associated cost (e.g., cost/unit use) that is expressed in a monetary value (e.g., \$).

The project manager has oversight responsibility for preparation of the Project Plan. **Once** completed, the proposed Project Plan is submitted by the project manager to the **sponsor/stakeholder** for review, comment, and approval. After necessary revisions have been made and the finalized Plan has been approved by the **sponsor/stakeholder**, the project manager can initiate implementation of the project **according** to the scope and schedule of the Plan.

Appendix Figure 7 (Pages 29 - 30) is a proposed outline of a Project Plan for development and certification of a fisheries facility. This plan generically outlines and describes the scope of tasks generic to development and certification of a fisheries facility. The proposed outline can be used to develop planning and tracking documents specific to a particular project.

User's Manual for Generating Project Planning and Tracking Documents

“A User’s Manual For The Software Programs And Template Files Of A Process To Generate Documents For The Management Of Programs/Projects” is attached as Appendix 2 (Pages 34 - 53). This manual provides the Project Manager and management team with the tools to facilitate the drafting, revision, and finalizing of all project management documents (e.g., Project Plan and Gantt chart), without the need for extensive background in classical management principles or experience with computer **software** programs (e.g., MS Project 4.0) used in project **planning** and tracking.

The manual's protocol and associated procedures for using the computer software programs and template files are organized as follows:

- (1) Development of information/data for the project's scope, schedule, and budget,
- (2) Entry and revision of this information/data within an interactive computerized framework, and
- (3) Generation of documents used for project planning and tracking to achieve milestones and adhere to budgetary & scheduling constraints.

The scope of tasks used in the template files (*cert-tmp.mpp* and *cert-tmp.xls*) has been customized to accommodate the generation of management documents for planning and tracking a prototype project through its life cycle (conceptualization through completion).

Process 3- Certifying A Project Facility

Process 3 of the project **framework**, as shown in Figure 4 (Page 13), sets forth three elements- Documentation, Deficiencies Audit, and Commissioning-that **culminate** in the **final** project milestone, issuance of the Facility Certification Document (Appendix 1, Fig. 10, Page 33). This document verifies that the facility and its operations personnel are certified to generate outputs as specified by the Sponsor/Stakeholder.

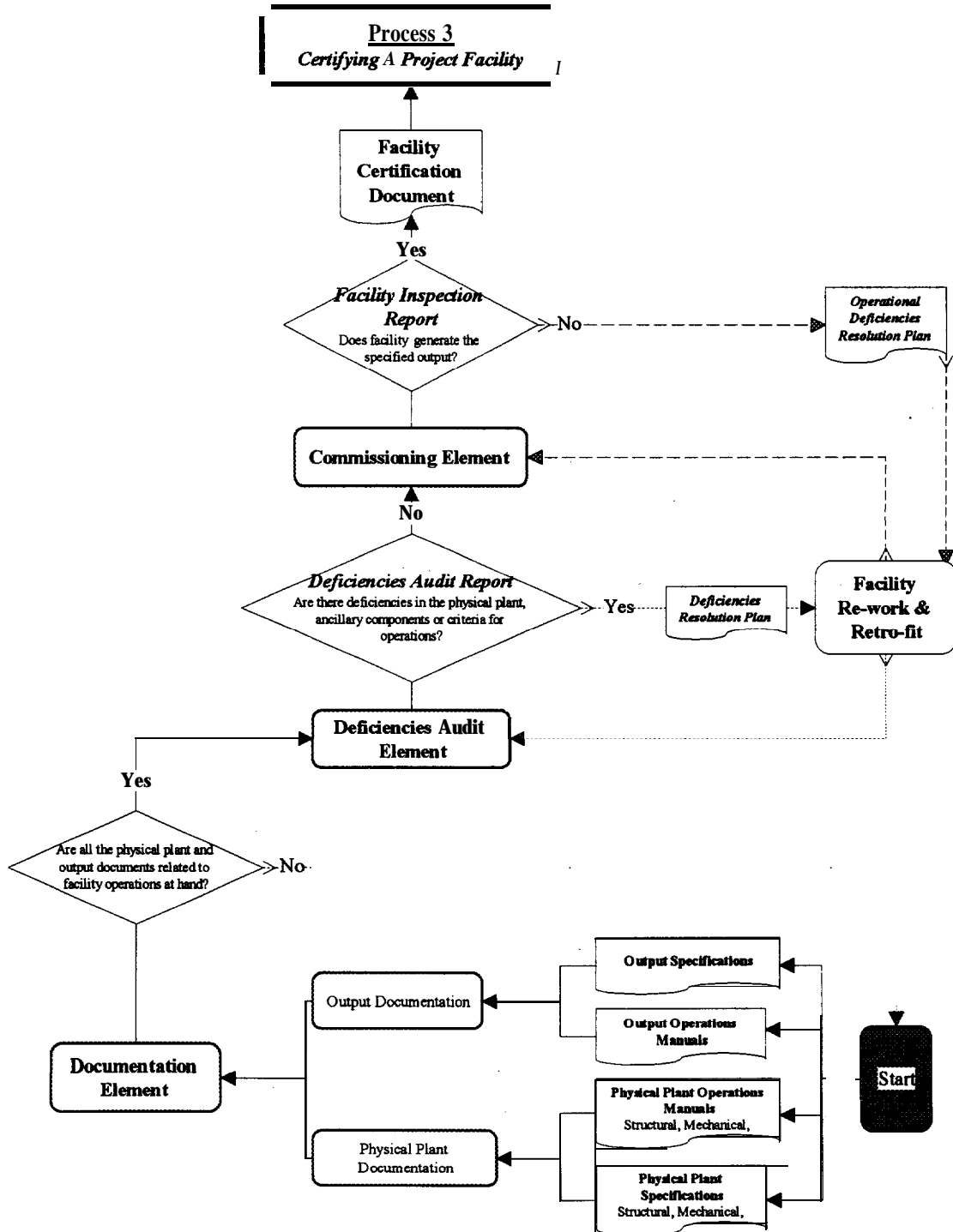
The Documentation Element

The Documentation Element constitutes the identification and acquisition of all project **information/data** relative to operating the facility's physical plant (mechanical, electrical, hydraulic components) and to generating outputs (e.g. data and/or fish products). The Project File contains documentation on the facility's architecture & engineering (A&E), accessory equipment, operating criteria, and output specifications that has accumulated throughout the project life cycle. The Project Manager is responsible for identifying the necessary documentation to complete this element. Additional documentation for the facility, not in the Project File, may need to be obtained from contractors and manufacturers of accessories to the project.

Documentation for the facility includes all written materials (e.g., manufacturer's manuals, reports, memoranda) that explain and specify the operation and maintenance of the facility's structural, mechanical, electrical, and hydraulic components. Documentation of the facility's

output must include all **scientific** operations manuals and product attributes (qualitative and quantitative) related to methods, protocols **and** procedures for generating the specified output.

Figure 4
Process 3- Certifying A Project Facility



To determine the completion of this process element, the Project Manager poses the question, “Are all the physical plant and scientific documents related to the facility operations and output on hand?” If the answer is “Yes,” the Documentation Element is completed and the process can proceed to the next element.

The Deficiencies Audit Element

The Deficiencies Audit Element encompasses an evaluation, identification, and resolution of facility deficiencies that may impair the capability of the **facility** to generate a specified output. Each facility component is scrutinized for deficiencies that impair the operational capability of the **facility** to generate the specified output. Facility deficiencies are generally categorized as:

- (1) Architecture & Engineering (A&E),
- (2) Accessories (equipment and tools),
- (3) Personnel (staff), and
- (4) Operations (criteria, protocols, methods, and procedures).

The Project Manager is responsible for overseeing the Deficiencies Audit Element and for issuing the results of the audit **as a Deficiencies Audit Report** (Appendix 1, Fig. 8, Page 3 1). This report identifies all deficiencies that could threaten the facility’s capability to generate the specified output, and it recommends the actions for correcting those deficiencies.

When **drafting** the audit, the Project Manager and his core team identify and list the deficiencies for various facility components (e.g., structural, mechanical, electrical, hydraulic and **technical**) by answering “yes” or “no” to the following questions:

- (1) Does the facility component meet all the Critical A&E specifications and possess all the accessories required to operate and maintain the facility and to generate the output?
- (2) Are all the appropriate documents (e.g., manuals) describing protocols, methods, and procedures for operating and maintaining each facility component available (on-hand) to the operational personnel?
- (3) Are personnel available and trained in the protocols, methods, and procedures for operating and maintaining each facility component?

The Project Manager submits the Deficiencies Audit Report to the **Sponsor/Stakeholder** for review and concurrence with the audit results. If critical deficiencies are identified, the Project Manager recommends a **Deficiencies Resolution Plan** for rectifying **facility** deficiencies that significantly impair either the project's success or its implementation date. This Plan accompanies the Deficiencies Audit Report, and includes the scope, schedule, and resources for resolution of deficiencies.

The **sponsor/stakeholder** and Project Manager discuss the Plan and mutually agree to a **final** Resolution Plan for rectifying critical deficiencies. Upon **Sponsor/stakeholder** approval, the Project Manager implements the Deficiencies Resolution Plan for facility modifications or retrofit, and tracks all task activities for deficiency resolution through their completion. A second Deficiencies Audit Report is conducted **after** completion of the facility modifications or retrofit.

When the answers to all audit questions of the Deficiencies Audit Report are "No," the Deficiencies Audit Element is complete and the process proceeds to the next element. If the answer is "Yes," the cycle of the Deficiencies Audit Element activities continues until the answer to all questions is "No."

The Commissioning Element

The Commissioning Element involves operating and testing the project facility under actual working conditions. Facility personnel operate all components and accessories (equipment and tools) of the facility, using the appropriate protocols, methods and procedures required to generate the specified output. The performance of the facility and personnel are monitored and **evaluated** to determine whether or not the specified output is generated under actual working conditions. **The** Project Manager is responsible for overseeing all activities of this element and for **drafting** and submitting a **Facility Inspection Report** (Appendix 1, Fig. 9, Page 32) following the **commissioning** and testing activities.

The Facility Inspection Report determines whether or not the facility generates the specified output under actual working conditions. The Report notes all failures observed during testing of the facility components, accessories, and personnel under operating conditions. Each failure is associated with a deficiency in either the A & E, accessory, personnel or operations category for a particular facility component. In completing this report, the Project Manager poses the question: "Does the facility generate the specified output under working conditions? If the answer is "Yes," a Facility Certification Document is issued. **If the** answer is "No," the Project Manager attaches **an Operational Deficiencies Resolution Plan** to the Inspection Report.

The Operational Deficiencies Resolution Plan recommends a plan (scope, schedule and resources) to the project **sponsor/stakeholder** that details the resolution of the operational **failures**, in terms of **rectifying** deficiencies. Upon agreement by the **sponsor/stakeholder**, the project manager implements the plan to re-work and/or to retrofit all facility deficiencies. After the re-work and retrofit activity is completed, the cycle of commissioning element activities (testing, monitoring, evaluating and reporting) is repeated **until the Facility Inspection Report** positively states that the facility and operating personnel generate the specified output, under actual working conditions.

The Facility Certification Document

Issuance of a **Facility Certification Document** (Appendix 1, Fig. 10, Page 33) is the milestone that marks the completion of a fisheries facility development/retrofit project and the process for certifying that facility (Process 3). After the first Facility Certification Document is granted, the certification process should be scheduled at least annually to **maintain** and/or upgrade accreditation for the facility operations and output. And, in cases where generation of the specified output is very critical, the certification process should be scheduled as frequently as required to assure that quality control of the facility's components, accessories, personnel, operations, and output is maintained at industry and/or scientific standards. The Facility Certification Document is posted at the facility's administrative office, where it is clearly visible to all.

Discussion

The certification process described in this report is an application of well developed and widely utilized procedures for assuring the performance of individuals and tools in a number of industries. Certification is a prerequisite in the professions of medicine, law, and engineering. In industry, the commissioning and certification of operations are widely supported, to assure that specified outputs are generated. However, the certification process described here is the first such application for various fisheries facilities (e.g., fish husbandry, protection, monitoring, and assessment) for which certification is not a common practice.

A certification process can range from simple peer review of professional/technical credentials to rigorous **examination** of these individuals' knowledge and experience following study or training and internship. The certification process presented in this report is typical of that for complex technical functions and equipment that are planned, designed, delivered, tested, commissioned, and **finally** certified as capable of generating a specified output.

In the case of the Columbia River Basin one argument for facility certification for fisheries is that it enables project sponsors to more critically scrutinize facilities and operations, and the credentials of their project members, according to current standards of performance. These performance standards must reflect the latest and most complete knowledge about the status of declining fisheries stocks, interactions between hatchery and wild stocks, **life** cycles, etc., and the state-of-the-art technologies for producing, protecting, monitoring, assessing, and enhancing these declining stocks. The Endangered Species Act (US Dept of Interior, 1973) is the driving force behind the increasing need to design and operate new/modified fisheries facilities in compliance with the most stringent performance standards.

The intent of facility certification is not to impose yet another regulatory process, but rather to implement a well planned, disciplined, and documented process that allows the early discovery of problems, when they can be more easily corrected, and provides the mechanism for communicating to the project owners/sponsors and the certifying authority(ies) the performance and outputs of a complex fisheries project. The project framework proposed in this report provides clear and accountable processes throughout the planning, design, and implementation stages and culminating in the certification of a fisheries facility.

While the scope of this report is narrowly focused, the certification process we describe is founded in basic project-management principles and utilizes well established and widely available project management tools. As a result, this process can be applied to a wide range of projects where the **final** operations and outputs of a complex production cycle must meet rigorous specifications and where the certification must be well documented and readily available for audit. This framework of processes can detect problems before they become chronic by keeping the project management team well informed at each stage of the project life cycle. This process also serves as a mechanism for information feedback to resolve uncertainties and problems critical to successfully generating a specified output.

This certification process provides for detailed documentation along the chain of **decision-**making and task work and assumes independent and comprehensive assessment of project performance, leading either to certification or to required modifications followed by re testing. In all cases, the certification process is more smoothly implemented when incorporated at the start as

a basic element of the **framework** of processes (e.g., organizing and defining a project, generating project management documents, implementation of task work, and commissioning and **certifying** the **facility**), as articulated in this report.

Bibliography

1. American Association of School Librarians. 1976. Certification model for professional school media personnel. Certification of School Media Specialist Committee, American Association Of School Librarians. American Library Association. Chicago 1976.
2. Archibald, R. D. 1992. Managing high technology programs and projects. Second Edition. John Wiley & Sons, Inc.
3. Badiru, A.B. 1988. Project management in manufacturing and high technology operations. John Wiley & Sons, New York.
4. **Badiru**, A. B. 1991. Institute of Industrial Engineers. Industrial Engineering and Management Press, Norcross, Georgia.
5. Bent, J. A. 1994. Project management for engineering and construction. Second Edition. The Fairmount Press, Inc.
6. Cleland, D. I. **and W.** R. Ring. 1988. Project management handbook. Second Edition. Edited by David I. Cleland and William R. Ring. Van Nostrand Reinhold, New York.
7. Frame, J. D. 1987. Managing projects in organizations- how to make the best use of time, techniques, and people. First Edition. Jossey-Bass Publishers, San Francisco, California.
8. Goel, B. B. 1987. Project management, a development perspective. Deep & Deep Publications, D-1/24, Rajouti Garden, New Delhi-1 10027.
9. Integrated Projects Systems. 1993. Project manager's handbook. Integrated Project Systems Associates, Inc., 1070 Sixth Avenue, Suite 110, Belmont, CA 94002.
10. Invitational Conference on Certification in Allied **Health** Professions. 197 1. Certification in allied health professions. Proceedings Invitational Conference September 7-10, 197 1. U.S. Department of Health Education, and Welfare, Public Health Service National Institutes of Health Contract 71-4155.
11. Kinney, L. B. 1964. Certification in Education. Englewood Cliffs, N. J. Prentis Hall Publisher.
12. Martino, R. L. 1964. Project management and control, volume I finding the critical path. American Management Association, Inc., New York. Printed in the United States of America by The Comet Press, Inc.
13. Martino, R. L. 1964. Project management and control, volume II applied operational planning. American Management Association, Inc., New York. Printed in the United States of America by **The** Comet Press, Inc.

14. Martino, R. L. 1965. Project management and control, volume III allocating and scheduling resources. American Management Association, Inc., New York. Printed in the United States of America by **The** Comet Press, Inc.
15. Oberlender, G. D. 1993. Project management for engineering and construction. McGraw-Hill, **Inc.**
16. Project Management Institute. 1996. A guide to the project management body of knowledge. **PMI** Standards Committee. Project Management Institute, 130 South State Road, Upper Darby, PA 19082.
17. Reinhart, R. O. 1982. The pilot's manual of medical certification and health maintenance. **Specialty** Press Publishers & Wholesalers, Inc. Box 426, 729 Prospect Avenue, Osceola, Wisconsin 54020.
18. Rosenau, Jr., M. D. 1981. Successful project management- a step by step approach with practical examples. Lifetime Learning Publications, Belmont, California 94002, a division of Wadsworth, Inc.
19. Shore, J. H. and S. C. Scheiber. 1994. Certification, recertification, and lifetime learning in psychiatry. First Edition. American Psychiatric Press, Inc. 1400 K Street, N. W., Washington, DC 20005.
20. Shtub, A., J. F. Baird and S. Globerson. 1994. Project management- engineering, technology and implementation. Prentis-Hall, Inc., Englewood Cliffs, New Jersey 07632.
21. **Shulman**, P. and D. Jackson. 1992. Facility personnel certification study: 1991 oil spill prevention act. Prepared for the Washington Department of Ecology by CADRE, Inc., Woodinville, Washington. June 1992.
22. Tucker, W. R. and B. G. **Wetterau**. 1975. Credentialing health personnel by licensed hospitals. The report of a study of institutional licensure. Volume I. Rush-Presbyterian-St. Lukes Medical Center, Chicago. February 1975. Grant No. **2R18 HS01193**, Health Resources Administration, U.S. Public Health Service, U.S. Department of Health, Education, and Welfare.
23. U.S. Department of Justice. 1995. Certification of DNA and other forensic specialists. National Justice Update, September 1995. Office of Justice Programs, National Institute of Justice, Washington D. C.
24. U.S. Department of Interior. 1992. Endanger species act of 1973, **as** amended through the 100th congress. U.S. Fish and Wildlife Service, Department of Interior. Washington, D. C.
25. **Viana**, V. 1996. Certification of forest products: issues and perspectives. Island Press, Washington D. C.
26. Washington State. 1991. Guidelines: state one-year certification program for wastewater treatment project. Washington State Department of Ecology, Water Quality Financial Assistance Program. April 1991.

27. Washington State. 1986. Journeyman plumbers certification law, RCW 18.106, Rules and Regulations. WAC-296-400. State of Washington, Department of Labor and Industries, Division of Building and Construction Safety Inspection Services. Olympia, Washington.

Appendix 1

Figures 1-10

Figure 1, Appendix 1
Project Organization & Management Sheet

<i>Project Participants</i>	<i>Name & Title</i>	<i>Role/Responsibility</i>	<i>Project Task</i>	<i>Phone & FAX Numbers</i>	<i>E-Mail Address</i>	<i>Mailing Address</i>
Owner/Sponsor (s)						
Project Manager						
Project Team- Core						
Project Team - Extended						
<i>Sheet Completion Date</i>						

Figure 2, Appendix 1
The Project Team Roster

[illegible]

Figure 3, Appendix 1
Project Objectives And Outputs Sheet

Objective 1: (25 words or less)	scope:	Timeframe:	Resource Type/Estimated Cost	Completion Criteria/Date
Output (s) of Objective 1:	Output Attribute:		Attribute Specification:	
Objective 2: (25 words or less)	scope:	Timeframe:	Resource Type/Estimated Cost	Completion Criteria/Date
Output (s) of Objective 2:	Output Attribute:		Attribute Specification:	
Objective 3: (25 words or less)	Scope:	Timeframe:	Resource Type/Estimated Cost	Completion Criteria/Date
Output (s) of Objective 3:	Output Attribute:		Attribute Specification:	
Objective 4: (25 words or less)	scope:	Timeframe:	Resource Type/Estimated Cost	Completion Criteria/Date
Output (s) of Objective 4:	Output Attribute:		Attribute Specification:	
Sheet Completion Date				

Figure 4, Appendix 1
Project Description Sheet

Executive Summary	<i>(Summary Text):</i>		
Project Purpose	<i>(Purpose Text):</i>		
Project Inclusions & Exclusion	<i>(Listing):</i>		
Project Strategic Alignment	<i>(Listing):</i>		
Project Completion Criteria	<i>(Listing):</i>		
Project Dependencies	Project Committed To/From	Committed Dates	
Dependency 1:			
Dependency 2:			
Dependency 3:			
Dependency 4:			
Project Staffing Requirements	Type	Skills	Experience
Project Equipment & Technology Requirements			
Risks Of Doing or Not Doing Projects	Risks Of Doing	Risks Of Not Doing	
Sheet Completion Date			

Figure 5, Appendix 1
Project Flexibility Sheet

Project Objective	Descriptive Element	Least Flexible	Moderately Flexible	Most Flexible
<i>Objective 1</i>	Scope			
	Time Frame			
	Resources			
<i>Objective 2</i>	Scope			
	Time Frame			
	Resources			
<i>Objective 3</i>	Scope			
	Time Frame			
	Resources			
<i>Objective 4</i>	Scope			
	Time Frame			
	Resources			
<i>Sheet Completion Date</i>				

Figure 6, Appendix 1
Project Approval To Proceed Sheet

	Project Objectives & Outputs Sheet		Project Description Sheet		Project Flexibility Sheet	
Project Management Entity	<i>Approval plus Conditions</i>	<i>Non Approval plus Recommended Changes</i>	<i>Approval plus Conditions</i>	<i>Non Approval plus Recommended Changes</i>	<i>Approval plus Conditions</i>	<i>Non Approval plus Recommended Changes</i>
<i>Project Sponsor</i>	Condition 1:	Change 1:	Condition 1:	Change 1:	Condition 1:	Change 1:
	Condition 2:	Change 2:	Condition 2:	Change 2:	Condition 2:	Change 2:
	Condition 3 :	Change 3 :	Condition 3 :	Change 3:	Condition 3 :	Change 3 :
<i>Project Manager</i>	Condition 1:	Change 1:	Condition 1:	Change 1:	Condition 1:	Change 1:
	Condition 2 :	Change 2:	Condition 2:	Change 2:	Condition 2:	Change 2:
	Condition 3 :	Change 3 :	Condition 3:	Change 3:	Condition 3 :	Change 3:
<i>Core Team Manager</i>	Condition 1:	Change 1:	Condition 1:	Change 1:	Condition 1:	Change 1:
	Condition 2:	Change 2:	Condition 2:	Change 2:	Condition 2:	Change 2:
	Condition 3 :	Change 3 :	Condition 3 :	Change 3:	Condition 3:	Change 3:
<i>Extended Team Manager</i>	Condition 1:	Change 1:	Condition 1:	Change 1:	Condition 1:	Change 1:
	Condition 2:	Change 2:	Condition 2:	Change 2:	Condition 2:	Change 2:
	Condition 3 :	Change 3 :	Condition 3 :	Change 3:	Condition 3 :	Change 3:
<i>Sheet Completion Date</i>						

Figure 7, Appendix 1.

A Customized Hierarchical Outline Of Project Tasks (Supra-, Summary- & Sub-Tasks) For Developing and Certifying A Fisheries Facility

ID	Task Name	Category	Schedule	Resources	Task Description Notes
1	Project For Development & Certification Of Fish Facility	Project Title	start-finish		The project for developing & certifying a fisheries facility
2	<i>Organizing, Defining & Planning The Project</i>	Supra	start-finish		Tasks to be undertaken within Process 2 of the project framework
3	Project Organization	Summary	start-finish		Tasks activities for setting up the organization of the project
4	Owner/Sponsor Identification	Subtask	start-finish	resource types & units	Task of addressing and identifying the owner/sponsor of the project; assists in completing of the Project Organization & Management Sheet .
5	Project Manager Selection	Subtask	start-finish	resource types & units	Task of addressing and identifying the person required for taking overall responsibility in managing the project through the completion (a certified facility); assists in completing of the Project Organization & Management Sheet .
6	Project Management Team Selection	Subtask	start-finish	resource types & units	Task of addressing and identifying the management team (core & extended) required for managing various tasks/responsibilities of the project to completion (a certified facility); assists in completing of the Project Organization & Management Sheet .
7	Posting Of Project Organization & Management Sheet and Project Team Roster	Milestone	start-finish		The Project Team Roster is posted.
8	Project Definition	Summary	start-finish		Task activities for defining the project
9	Statement of Objectives & Outputs- Project Objectives & Outputs Sheet	Subtask	start-finish	resource types & units	Task for developing and stating the project objectives and specifying the attributes for outputs generated by the project; results in a completed Project Objectives & Outputs Sheet .
10	Provision Of project Synopsis- Project Description Sheet	Subtask	start-finish	resource types & units	Tasks activity for articulating a synopsis of the project in terms of purpose, inclusions & exclusions, strategic alignment, completion criteria, requirements (staffing, equipment & technology), and risks; results in a completed Project Description Sheer .
11	Assessment Of Project Constraints & Tradeoffs- Project Flexibility Sheet	Subtask	start-finish	resource types & units	Task for assessing and determining the constraints of task scope, schedule and resources for the project; results in a completed Project Flexibility Sheet '
12	Concurrence and approval of the of project sheets by all project participants	Subtask	start-finish	resource types & units	Task of consulting & seeking concurrence and approval by all project participants regarding the elements and information contained in the project sheets (Project Objectives & Outputs Sheet, Project Description Sheet, & Project Flexibility Sheet).
13	Approval By Owner/ Sponsor • Project Approval To Proceed Sheet	Milestone	Completion Date		Project approval by the owner/sponsor; issuance of a completed Project Approval To Proceed Sheet .
14	Project Plan & Tracking Document	summary	start-finish		Tasks activities for developing a comprehensive project plan document used for managing and tracking the project to a successful completion as a certified facility.
15	Scope Of Project Tasks	Subtask	start-finish	resource types & units	Task of developing and finalizing a comprehensive listing and description of tasks required for developing and completing a certified facility .
16	Schedule For Project Tasks	Subtask	start-finish	resource types & units	Task of developing and finalizing a comprehensive listing and description of tasks required for developing and completing a certified facility
17	Resources /Unit Costs For Project Tasks	Subtask	start-finish	resource types & units	Task of determining and assigning resources required for undertaking various project tasks in developing and completing a certified facility
18	Owner/Sponsor Approves The Project Plan & Tracking Document	Milestone	Completion Date		Comprehensive Project Plan is submitted & approved by project owner/sponsor.
19	Project Engineering, Constructing & Hiring/Training Of Facility Operations Personnel	Supra	start-finish		Tasks to be undertaken within Process 2 of the project framework; also includes tasks to design & construct the facility; and staffing & training for facility operations.

ID	Task Name	Category	Schedule	Resources	Task Description Notes
20	Pre-Construction	summary	start-finish		Tasks activities to design, engineer & stage for construction of the facility.
21	Facility A&E	Subtask	start-finish	resource types & units	Task of designing & engineering a facility that meets the operational capability and specifications
22	Acquisition/Staging Of Contractors, Equipment, & Materials	Subtask	start-finish	resource types & units	Task of organizing & staging human equipment and materials resources required in construction of a facility.
23	Construction, Test & Shake Down Of Capital Facility	<i>summary</i>	start-finish		Task activities for undertaking the construction, testing and shake down of the facility.
24	Construction (structural, mechanical, electrical & hydraulic)	Subtask	start-finish	resource types & units	Task of constructing & completing the facility for testing & shake down.
25	Test/Shake Down Of Facility Structural, Mechanical, Electrical & Hydraulic Components	Subtask	start-finish	resource types & units	Task of testing & shaking down the facility in preparation for the certification process.
26	Operations Personnel	<i>summary</i>	start-finish		Task activities for acquiring human resources for operating the facility.
27	Hiring Of Personnel	Subtask	start-finish	resource types & units	Task of defining personnel skills & experience required, and hiring said personnel for operating the facility and generating output (s).
28	Orientation & Training of Personnel For Facility Operations	Subtask	start-finish	resource types & units	Task of briefing personnel for facility operations, determining skill deficiencies of personnel, and training personnel to a skill (s) level for operating the facility competently.
29	Facility & Personnel Are Ready For The Certification Process	Milestone	Completion Date-		The facility & personnel are ready for certification process
30	Certifying The Facility Process	Supra	start-finish		Tasks to be undertaken within Process 3 of the project framework.
31	Documentation Of The Facility	<i>summary</i>	start-finish		Tasks activities for assembling all documentation pertinent to specifying plant operations (mechanical, electrical, hydraulic), the facility operating capability and output generation.
32	Acquisition & Organization Of Physical Plant Documentation For The Facility	Subtask	start-finish	resource types & units	Task of acquiring and organizing information regarding facility structural, mechanical, electrical and hydraulic elements.
33	Acquisition & Organization Of Specifications Documentation For Capability & Output	Subtask	start-finish	resource types & units	Task of acquiring and organizing scientific & non-scientific information regarding elements specific to operating capability and output generation.
34	Deficiencies Audit & Facility Re- Work	<i>summary</i>	start-finish		Tasks activities for determining deficiencies in specified requirement for the facility plant and its operational capability.
35	Review Of Documentation To Determine Facility Deficiencies	Subtask	start-finish	resource types & units	Task of reviewing all physical plant elements, operating capability and output information for determining deficiencies, in order to set forth a work plan for upgrading/retro-fitting facility to rectify facility deficiencies prior to testing for operational capability and output generation.
36	Re-Work Of Facility To Rectify Deficiencies Prior To Testing	Subtask	start-finish	resource types & units	Task of upgrading/retro-fitting facility elements to specified requirements.
37	Commission The Facility	<i>summary</i>	start-finish		Tasks activities for testing and commissioning the facility and personnel, using specified operating criteria.
38	Test Facility According To Specified Operations (Plant & Personnel)	Subtask	start-finish	resource types & units	Task of testing the facility & personnel under a fully operational regime.
39	Review Test Results Of Test & Determine Success Of Operations Capability	Subtask	start-finish	resource types & units	Task of reviewing and determining the results of whether or not the facility operating capability and output meet specifications.
40	Re-Work Of Facility Contingent On Any Deficiencies In Operations Capability	Subtask	start-finish	resource types & units	Task of generating and implementing re-work activities to correct any operational deficiencies, based on test results and recommendations per subtask 40.
41	Facility Is Issued Certification Document	Milestone	Completion Date		Issuance of the Certificate Of Facility Certification.

Figure 8, Appendix 1
Example Of A Deficiencies Audit Report

[illegible]

Audit Completion Date: _____

Auditing Official's Signature: _____

Figure 9, Appendix 1
Example Of A Facility Inspection Report

[illegible]

Inspection Completion Date: _____

The facility is operationally ready and generates the specified output (s): Yes ___ No ___

Inspecting Official's Signature: _____

Figure 10, Appendix 1

Example Of A Facility Certification Document For The Happy Lock Rainbow Trout Farm

Certificate Of Facility Certification

On this day of December 15th 1996, let it be recognized that the facility and staff of the Happy Loch Rainbow Trout Farm are certified to be operational qualified and capable to produce rainbow trout according to scientific and industry standards set forth by the Fish Growers Association of America. The period of certification shall be 15 December 1996 through 14 December 1997.

Name _____ Facility Certifying Official Signature _____ D a t e

Name _____ President, Fish Growers Association Of America Signature _____ D a t e

Appendix 2

User's Manual For Software Programs And Template Files Of A Process To Generate Documents For The Management Of Programs/Projects

Background

This manual instructs the reader about a process and software tools which facilitate the generation of documents used for the management of a program/project (See Figure 1, Page 36). A protocol and the associated procedures & steps for implementing the process and software tools are described in terms of the (1) Development of the information & data for the scope, schedule and budget of a program/project, (2) Entry and edition of this information & data within an interactive computerized framework, and (3) Generation of a plan & outputs/documents used for managing and tracking a program/project in terms of achieving milestones and adhering to budgetary & scheduling constraints.

Basic Requirements For Using The Process

Information and data in this process are entered, managed and generated using two software programs (Windows™ Series), Microsoft Excel 5.0 and Microsoft Project 4.0. A Windows™ compatible word process program (e.g. Word 6.0 or Word Perfect 6.0) is recommended for outlining the project scope and making rough drafts of text-related information (e.g. task description).

The computer system used for this process should have at least 12 MB (16 MB recommended) to run multiple programs used for the Dynamic Data Exchange (DDE) procedure, for procedures of **intra-**program information exchange and, or for procedures in generating output/report documents. **Note:** Refer to “Systems Requirements” section of the manufacturer’s manual for greater detail in operating the **Windows™** software programs used in this process.

The user of this process should have a basic skill level in **Windows™** operations and MS Excel 5.0. The Procedures and Steps in the **Instructions For Creating & Modifying Planning, And Tracking Documents Used In The Management And Budgeting Of A Program/Project** section (Pages 42 - 49) should be provide sufficient information to the user for operating the MS Project 4.0 software.

Definition Of Terms

Program/Project Scope: An outline that provides a hierarchy and generally descriptive illustration of tasks defining the program/project; it provides a hierarchical listing (Work Breakdown Structure) of program/project components (summary tasks) with underlying task work (subtasks) that facilitate the accomplishment of a **program/project** output and/or milestone (a bench-mark of achievement).

Program/Project Schedule: The time-frame (Duration) for conducting and accomplishing tasks and milestones of program/project; it includes a Start Date (Start) and a Finish Date (End).

Program/Project Budget: The cost (express in monetary terms) allocated to each program/project task; it is the sum of all resources costs utilized to accomplish a **subtask-Subtask Budget = Sum ((Resource Names) X (Maximum Units) X(Cost/Use Of A Resource Name))**.

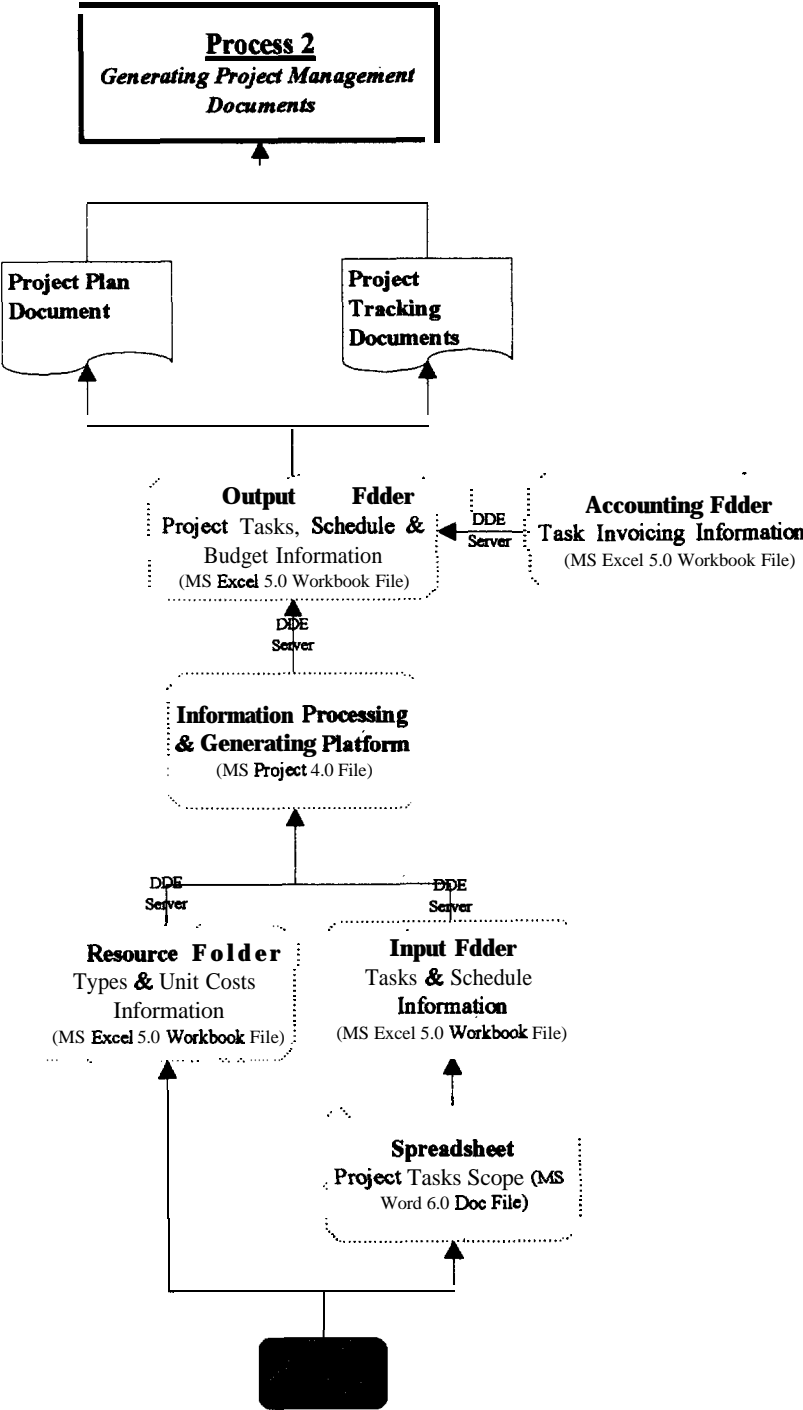
Summary Task: A task that is comprised of **subtasks** and **generically** summarizes the underlying subtasks; MS Project 4.0 automatically determines summary task information (Duration, Cost, etc.) using the information from the subtasks.

Subtask: A task that is subordinate to a **summary task**; MS Project 4.0 consolidates the **subtask** information (Start, End, Duration and Cost) in the summary task., and has an outlining feature (Promote & Demote buttons) that designates **subtasks**.

Milestone: A reference point that marks a major event in a program/project, used in monitoring program/project progress; any **subtask** with a zero (0) duration is a milestone.

Template: A MS Excel 5.0 or MS Project 4.0 format containing information (e.g. **Column/Line/Row** Headings, Resources List) and DDE protocol (s) that can be re-formatted for developing a new program/project and/or for editing an existing program/project.

Figure 1. Flow Chart For Protocol And Software Tools Used In Generating Project Management & Tracking Documents



Task View: A screen view in MS Project 4.0 (**Default** view, or accessed through **More Views** per Menu = **View**) that displays task information; **Gantt Charts, PERT Charts, the Calendar, and all view with names** that include the word “Task” can be displayed from this screen view.

Resource Sheet: A screen view in MS Project 4.0 (accessed through **Resource Sheet** per Menu = **View**) that displays resource information, and lists the Resource Name, Maximum Units and Cost/Use for each program/project; the Resource Graph, Resource Usage and resource forms can be displayed from this view.

Dynamic Data Exchange (DDE) : A protocol for the active exchange of data copied among documents (within a software program/project or between software program/projects); when the data changes in the source document (Server), it is automatically updated in the copy document (Container).

The General Protocol, Procedures And Steps. Of The Process

The protocol for this process is generally comprised of the following elements:

- (1) Outline the scope of work (summary tasks & subtasks) and work schedule (start date, finished date) for a program/project;
- (2) Assign resources (cost per use) to each subtask which estimate the program/project budget;
- (3) Generate the program/project plan based on the scope, schedule and budget/resources;
- (4) **Manage** the program/project through adaptations (editions) to the plan, based on new information; and
- (5) Track the program/project & disseminate program/project related information using graphical illustrations of the scope, schedule and budget/resources.

The elements of this protocol implement a series of procedures and steps, using **software** operations & templates (in MS Excel 5.0 and **MS Project 4.0**), for facilitating information inputs in generation of documents for managing and tracking a program/project.

Template Files And General Description

Electronic Templates in MS Excel 5.0 and MS Project 4.0 are provided to user of this process in order to expedite the creation and utilization of new program/project files for housing specific information and for generating the management/tracking documents. These templates contain the formats and dynamic data exchange linkages (DDE) for organizing and manipulating program/project information using the **software tools**.

MS Excel 5.0 Program/Project Template File (Workbook)

The MS Excel 5.0 workbook file, entitled *temp-tmp.xls*, includes four folders- **Resources** folder, **Input** folder, **Output** folder, and **Accounting** folder. Each folder is formatted and linked (DDE) so that information can be exchanged between folders of *temp-tmp.xls* workbook and the MS Project 4.0 template file (*temp-tmp.mpp*).

The Resources folder contains information regarding the types and monetary costs of resources used for accomplishing the various **subtasks** within the program/project scope. This folder is linked (DDE as Server document) with the **Resource Sheet** of the MS Project 4.0 template *temp-tmp.mpp* file, and is used as the index for deriving information, that is entered to the *Resources Types (Units)* column of the **Input** folder (*temp-tmp.xls* workbook). The *Resource Name, Max Units* and *Cost/Use* information of the Resources folder is used to generate the estimated budgets for each **subtasks** of the Program/Project. **Note:** Refer to “**Preparation Of A Subtask Budget For A New Program/Project Using Resource Name, Max Units And Cost/Use Information**” (Pages 40 - 41).

The Input folder is a document for inserting information regarding the scope, schedule and resources (types, units and cost per use) of a **program/project**. It is a server document that is linked (DDE) with **Output** and **Accounting** folders (*temp-tmp.xls* workbook) and the **Task Sheet** of the MS Project 4.0 template *temp-tmp.mpp* file, and exchanges the scope, schedule and resource/budget information that drive the results of the container documents (**Output** and **Accounting** folders and the **Task Sheet**).

The Output folder is a matrix that illustrates and generally describes the program/project plan (scope, schedule & budget) and information used for managing and tracking the program/project. It is the container document linked (DDE) with Input and Accounting folders (*temp-tmp.xls* workbook) and the MS Project 4.0 template *temp-tmp.mpp* file.

The Accounting folder contains information regarding the monetary expenditures for accomplishing the various **subtasks** within the program/project scope. This folder is linked (DDE) **with the Input** folder (Server document) and **the Output** folder (Container document), and is used as cost accounting document for entering and **summarizing** expenditures for **subtask** and summary task categories of a program/project.

MS Project 4.0 Program/Project Template File

The MS Project 4.0 *Ne*, entitled *temp-tmp.mpp*, is the platform for (1) organizing the scope (summary tasks and subtasks), (2) calculating the schedule (duration) and budget (resource types & unit costs) and (3) generating graphical illustrations (e.g. Gantt Chart), of a program/project. It is respectively a server and container file (DDE) to **the Output** folder and **Resources & Input** folders (MS Excel 5.0 workbook *temp-tmp.xls*).

Preparation Of The Scope For A New Program/Project For Import To An Excel 5.0 Workbook

This section provides the procedures and steps for preparing an outline of the tasks (summary tasks and subtask), of the new program/project, that will be imported into a **program/project** template- the **Input** folder of the MS Excel 5.0 workbook (*temp-tmp.xls*).

Drafting the scope of a new program/project entails the development of a listing of tasks that comprehensively describe the program/project. This listing of tasks is presented as a hierarchical outline that illustrates the program/project in terms of summary tasks with underlying **subtasks** and milestones.

Procedure 1: *Creating an electronic file with a table for drafting the scope, using a WindowsTM compatible word processing program (e.g. Word 6.0 or Word Perfect 6.0)*

Step 1- Open the WindowsTM compatible word processing program; Click on **File** (Menu = **File**); next click on **New** (Menu = **File**) and create and save the new file by clicking **Save** (Menu = **File**), then type a file name (e.g. *scope.doc*) in the File Name box and click the **OK** button. You have created and save a new file for drafting the scope of a new program/project.

Step 2- Using the appropriate procedures and steps of WindowsTM compatible word process program create a 1 column by 49 plus row table in the newly created file, and save the file with the table (1 X 49) by clicking **Save** (Menu = **File**).

Step 3- Draft and insert a hierarchical listing of the Program/Project Title (first entry), **summary** tasks, **subtasks** and milestones that describe the program/project into the table (1 X 49 **plus**). Refer to *Figure 2* (Page 39) for an illustration of a hierarchical listing of a program/project and subordinate summary tasks, **subtasks** and milestones.

Note: The maximum number of entries to the templates of the MS Excel 5.0 workbook (*temp-tmp.xls*) **is 48** tasks (inclusive of the project/program title, summary tasks, **subtasks** and milestones)

Figure 2. An Example Of A File With A **Scope/Listing** Of A Program/Project And Subordinate Summary Tasks, Subtasks And Milestones

Program/Project Scope/Listing	Category Type Of Listed Item
DAY PROGRAM	Program/Project Tie
DAY PROGRAM	Program/Project Title
NEPA/EIS	Summary Task
Draft EIS	Subtask
Public Release of Final EIS and ROD	Subtask
<i>ROI Completed</i>	Milestone
CRITICAL TASK COMPONENTS TO DESIGN/CONSTRUCTION	Summary Task
Hydrologic Testing	Subtask
Lands Acquisition	Subtask
BioSpecifications	Subtask
CHERRY DAY FACILITIES COMPLEX	Supra-Summary Task
CENTRAL FACILITY	Summary-Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
YAWS DAY CR. SATELLITE	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
CEDAR DAY SATELLITE	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
Sweet Water Days Facilities Complex	Supra-Summary Task
CENTRAL FACILITY	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
LUKAS DAY SATELLITE	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
NEWSMEN DAY SATELLITE	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
MILL DAY SATELLITE	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone
N. DAY VALLEY SATELLITE	Summary Task
Design	Subtask
Construction & Shakedown	Subtask
Operational Ready	Milestone

Procedure 2: Importing A Draft Program/Project Scope From The Word Processing File To A Folder Of The Excel 5.0 Workbook Template

Step 1- Using the appropriate procedures and steps of Windows™ compatible word process program select and copy the scope (the listing of program/project title, **summary** tasks, **subtasks** and milestones). To copy the scope of a file in MS Word 6.0, select the text of the rows containing the tasks by clicking on first task item, holding **&** dragging cursor to the end of last task item and then releasing); and then copy the selected task items using key function **Ctrl + C**

Step 2- Switch from the Windows™ compatible word process program screen display to MS Excel 5.0 screen display using the **Alt + Tab** keys operation to display **Microsoft Excel-Workbook file (e.g. day-tmp.xls)**

Step 3- Refer to **Step 2 & 3** of *Procedure 6* (Page 44) in the “Instructions For Creating & Modifying Planning, And Tracking Documents Used In The Management And Budgeting Of A Program/Project” section for importing the copied scope of the new program/project to the **Input** folder of the new workbook file (e.g. *day-tmp.xls*).

Preparation Of A Subtask Budget For A New Program/Project Using Resource Name, Max. Units And Cost/Use Information

This section provides the general instructions for preparing the estimated budgets of tasks (subtasks) for a new program/project; these instructions are complementary to the **Steps 7 and 8** of *Procedure 6*: for “**Modifying the Input folder of the new workbook file (day-tmp.xls) to reflect the scope (task+), schedule (start date and end date of tasks) and resources (resource type and maximum units) for the new program/project**” (Page 44) The estimated budget for each **subtask** is derived from the **Cost/Use** and **Maximum Units** for each **Resource Name** (resource type) information; in other words, **subtask** budgets are resource (types and units). driven. The MS Project 4.0 software tool automatically generates the estimated budget for a summary task based on the information input for estimating the budgets of **all** its **subtasks** (subordinate tasks).

Figure 3. Illustration Of Information Used For Estimating Program/Project Subtasks

Resource Names (Types)	Maximum Units	Cost/Use
BPA Engineer	40	\$100,000
BPA Biology	40	\$100,000
BPA Capital	40	\$250,000
Tribal	40	\$100,000
BPA Environment	40	\$100,000
		\$100,000

Figure 3 provides an illustration of the information required to generate the estimated budget for a **subtask**. The Resource Names column lists six types of resource types that are needed for the accomplishing any **subtask** in the program/project. Each resource type (Resource Name) is given a Maximum Units value that equates to a total dollar amount (a budget) based on the **Cost/Use** value. Each unit value (Max. Units) for a Resource Name is a derivative of a dollar value designated in the **Cost/Use** category. For example, the program/project budget for a BPA Engineer resource type is **\$4,000,000** (40 Units X \$100,000); whereas the program/project budget for a BPA Capital resource type is **\$10,000,000** (40 Units X \$250,000). You can modify the amount budgeted for each Resource Name by changing the value in the Maximum Units and, or the **Cost/Use** columns. Note: For each Resource Name, You are limited to a value of no more than 50 in the Maximum Units column.

Figure 4. Examples Of Estimated Budgets For A Program/Project Subtask

Subtask	Resource Names	Maximum Units (= \$ Value)	Cost/Use
Draft EIS Example 1	BPA Engineer	[.05] = \$20,000	\$100,000
	BPA Biology	[.05] = \$20,000	\$100,000
	BPA Environment	[.05] = \$20,000	\$100,000
	Tribal	[.05] = \$20,000	\$100,000
		Estimated Budget = \$80,000	
Draft EIS Example 2	BPA Engineer	[1.5] = \$150,000	\$100,000
	BPA Biology	[.05] = \$20,000	\$100,000
	BPA Environment	[.05] = \$20,000	\$100,000
	Tribal	[.05] = \$20,000	\$100,000
		Estimated Budget = \$210,000	

Figure 4 illustrates the Resource Names and their associated Maximum Units and Cost/Use information for two program/project **subtasks** examples. The Draft EIS uses 0.05 units each of BPA Engineer, BPA Biology, BPA Environment and Tribal resource types (Resource Names) at \$100,000 cost/use; the estimated budget for accomplishing the **subtask** work is \$80,000 (Example 1). Knowing that monetary cost of using each resource **type** is \$20,000 for this **subtask**, you can determine the value for resource units

by dividing \$20,000 (estimated resource budget) by \$100,000 (Cost/Use), which equals 0.05 units. **If the** estimated cost for a BPA Engineer resource was \$150,000, the value for the resource **units** would be 1.5 ($150,000/100,000=1.5$), and the estimated budget for accomplishing the Draft EIS **subtask** work would be \$210,000 (Example 2).

Instructions For Creating Sub-Directories, In MS Excel 5.0 And MS Project 4.0 Directories, For Housing Template Files And Importing Template Files (*TEMP-TMP.XLS & TEMP-TMP.MPP*) Used For The Program/Project Process

Creating MS Excel 5.0 and MS Project 4.0 Sub-Directories For Housing Program/Project Template Files

Procedure 1: Creating A MS Excel 5.0 Sub-Directory

Step 1- From **Program Manager** view, double click on the **Main** icon; next double click on **File Manager** and select the excel folder- the Excel 5.0 directory of the C: Drive.

Step 2- Click on **File** (Menu = **File**); next click on **Create Directory**, then type **prgm-tmp.xls** in the **Name** box and click the **OK** button. You have created a subdirectory **prgm-tmp.xls** in the excel directory.

Procedure 2: Creating A MS Project 4.0 Sub-Directory

Step 1- From **Program Manager** view, double click on the **Main** icon; next double click on **File Manager** and select the winproj folder- the Project 4.0. directory

Step 2- Click on **File** (Menu = **File**); next click on **Create Directory**, then type **prgm-tmp.mpp** in the **Name** box and click the **OK** button. You have created a subdirectory **prgm-tmp.mpp** in the winproj directory.

Importing The Program/Project Template Files (*temp-tmp.xls & temp-tmp.mpp*) From The 3.5 Inch 2HD Disc (Drive A/B) To Drive C Containing Newly Created MS Excel 5.0 and MS Project 4.0 Sub-Directories (*prgm-tmp.xls & prgm-tmp.mpp*)

Procedure 1: Importing the MS Excel 5.0 temp-tmp.xls template file

Step 1- Insert the disc (3.5 inch 2 HD), marked **Program/Project Template Files**, to drive a or drive b of your computer system

Step 2- From **Program Manager** view, double click on the **Main** icon; next double click on **File Manager**, select and double click on the excel folder (the Excel 5.0 directory) and then click on **prgm-tmp.xls** subdirectory

Step 3- Click on **a** or **h** drive button (upper left corner of **C:\..\EXCEL\PRGM-TMP.XLS*. * view**)- the drive containing program/project template file on the 3.5 inch 2HD disc

Step 4- With the **A:\. .\EXCEL\PRGM-TMP.XLS*. * view** displayed, click on and hold on the **temp-tmp.xls** file, and drag the **temp-tmp.xls** file to the c drive button (upper right corner) and release; a dialog box will appear with the query **"Are you sure you want to move the selected files or directories to C:\..\EXCEL\PRGM-TMP.XLS?"**, and click **Yes** button. You have copied and imported the program/project template file **temp-tmp.xls** into the **prgm-tmp.xls** subdirectory of your computer system.

Procedure 2: Importing the MS Project 4.0 temp-tmp.mpp template file

Step 1- From **Program Manager** view, double click on the **Main** icon; next double click on **File Manager**, select and double click on the **winproj** folder (the Project 4.0 directory) and then click on **prgm-tmp.mpp** subdirectory

Step 2- Click on **a** or **b** drive button (upper left corner of **C:\WINPROJPRGM-TMP.MPP*. * view**)- the drive containing program/project template file on the 3.5 inch 2HD disc

Step 3- With the **A:\WINPROJPRGM-TMP.MPP** view displayed, click on and hold on the *temp-tmp.mpp* file, and drag the *temp-tmp.mpp* file to the c drive button(upper right corner) and release; a dialog box will appear with the query “*Are you sure you want to move the selected files or directories to C:\WINPROJPRGM-TMP.MPP?*”, and click **Yes** button. You have copied and imported the program/project template file *temp-tmp.mpp* into the *prgm-tmp.mpp* subdirectory of your computer system.

Instructions For Creating, Modifying & Revising Planning And Tracking Documents Used In The Management And Budgeting Of A Program/Project

Creating Planning And Tracking Documents For A New Program/Project

Procedure 1: *Opening MS Project 4.0 and MS Excel 5.0 template files used for creating a new program/project*

Step 1- In Program Manager (or Microsoft Office), double click on the Microsoft Project icon and **Microsoft Project-Project 1** is displayed; click on **Open** (Menu = **File**) and double click subdirectory **prgm-tmp.mpp** (*winproj* directory) and open *temp-tmp.mpp* file

Step 2- Using **Alt + Tab** keys operation, return to Program Manager (or Microsoft Office) and double click on the Microsoft Excel icon to display **Microsoft Excel-Book 1**; click on **Open** (Menu = **File**) and double click subdirectory **prgm-tmp.xls** (*excel* directory) and open *temp-tmp.xls* file

Procedure 2: *Creating new program/project template file in MS Project 4.0*

Step 1- Using **Alt + Tab** keys operation, display **Microsoft Project-TEMP-TMP.MPP**

Step 2- Rename the file (*temp-tmp.mpp*) by selecting **Save&** (Menu = **File**) and naming a new program/project template (*day-tmp.mpp*); you now have created a new program/project template file entitled **day-tmp.mpp**

Procedure 3: *Creating new program/project template file in MS Excel 5.0*

Step 1- Using **Alt + Tab** keys operation, display **Microsoft Excel- TEMP-TMP.XLS**; this file is an **MS Excel Workbook** file and contains four folders (**!Resources!**, **!Input!**, **!Output!** & **!Accounting!**). **Note:** Click on each tab to view the contents/layout of each folder.

Step 2- Rename the Workbook file (*temp-tmp.xls*) by selecting **Save As** (Menu = **File**) and naming a new program/project template (*day-tmp.xls*); you now have created a new program/project template file entitled **day-tmp.xls**

Procedure 4: *Modifying the Resource sheet of the new Program/project MS Excel 5.0 workbook file (day-tmp.xls)*

Step 1- **Open** the Resource folder of the new workbook file (*day-tmp.xls*), by clicking the **Resource** tab

Step 2- Review the contents in the Columns A, B, D & G) and **modify** and/or change each cell to reflect the appropriate Resource Name and its associated Initial, Maximum Units and Cost per Unit of the new program/project template (See Figure 5).

Step 3- Save changes to the **Resource** folder by selecting **Save** (Menu = **File**).

Figure 5. View Of The Resources Folder For The New Program/Project Workbook File, *day-tmp.xls*, Illustrating The Resource Name, Max Units And Cost/Use

Resource Name	Initial	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use (Budget)	Accrued At	Base Calendar	Code
BPA Engineer	BE		40			\$100,000			
BPA Biology	BB		40			\$100,000			
BPA Capital	BC		40			\$250,000			
Tribal	TC		40			\$100,000			
BPA Environment	BEV		10			\$100,000			
Resource 6									
Resource 7									
Resource 8									
Resource 9									
Resource 10									
Resource 11									
Resource 12									
Resource 13									
Resource 14									
Resource 15									

figure 6. Partial View Of The Resource Sheet For The New Program/Project Workbook File, *day-mpp.xls*, Illustrating The Resource Name, Max Units And Cost/Use

ID	Resource Name	initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At	
1	BPA Engineer	BE		4	\$0.00/	\$0.00/	\$100,000.0	Prorated	
2	BPA Biology	BB		4	\$0.00/	\$0.00/	\$100,000.0	Prorated	
3	BPA Capital	BC		4	\$0.00/	\$0.00/	\$250,000.0	Prorated	
4	Tribal	TC		4	\$0.00/	\$0.00/	\$100,000.0	Prorated	
5	BPA Environment	BEV		1	\$0.00/	\$0.00/	\$100,000.0	Prorated	
6	Resource 6	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
7	Resource 7	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
8	Resource 8	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
9	Resource 9	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
10	Resource 10	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
11	Resource 11	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
12	Resource 12	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
13	Resource 13	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
14	Resource 14	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	
15	Resource 15	R		1	\$0.00/	\$0.00/	\$0.0	Prorated	

Procedure 5: Establishing a Dynamic Data Exchange (DDE) between the MS Excel Resource Folder (*day-tmp.xls*) and the Resource Sheet of the MS Project 4.0 file (*day-tmp.mpp*)

Step 1- Select the cell block A2:G16 of the **Resource** folder of the new workbook file (*day-tmp.xls*), and copy selection using Ctrl + C keys operation

Step 2- Switch from a Excel 5.0 screen display (*day-tmp.xls*) to MS Project 4.0 screen display (*day-tmp.mpp*) using the **Alt + Tab** keys operation to-display **Microsoft Project-DA Y-TMP.MPP**

Step 3- Select the **Resource Sheet** of *day-tmp.mpp* file from **View** of Menu.

Step 4- Select the block of column cells under Resource Name, Initial, Maximum Units and Cost per Unit from Line 1 through Line 15 of **the Resource Sheet view**. Next select **Paste Special** (Menu = **Edit**), and then select **Paste Link** and click on OK button (See Figure 6).

Step 5- Save changes to the *Resource Sheet* by selecting **Save** (Menu = **File**). You have now completed the revision of the *Resource Sheet* (*day-tmp.mpp* file), and the new MS Project 4.0 Program/project file (*day-tmpmpp*) is prepared for subsequent DDE.

Procedure 6: *Modifying the Input folder of the new workbook file (day-tmp.xls) to reflect the scope (tasks), schedule (start date and end date of tasks) and resources (resource type and maximum units) for the new program/project*

Step 1- Switch from the MS Project 4.0 screen display (*day-tmp.mpp*) to Excel 5.0 screen display (*day-tmp.xls*) using the **Alt + Tab** keys operation to display **Microsoft Excel-DAY-TMPXLS**

Step 2- Open the **Input** folder of the new workbook file (*day-tmp.xls*), by clicking the **Input** tab

Step 3- In Column B (*Task Name*), insert a copy of the outline the scope of the new Program/project (derived from *Procedures I and 2* of the “**Preparation Of The Scope For A New Program/Project For Import To An Excel 5.0 Workbook**” section, Pages 38 - 40) by first clicking on cell B2 (the cell containing *Task 1*) and then pasting the selection using the **Ctrl + V** keys operation. Note: For the more experienced program/project planner, the scope for the new program/project can be drafted more directly using Excel procedures for selecting and replacing each task (1 to as many as 48 tasks, including the program/project title) with the task names (scope) of the new program/project

Step 4- In Column C (*Duration*) select the cell of each task designation (Column B) that is a program/project *milestone*, and enter the **number 0** (zero) use Excel procedures for selecting cells of Column C and entering the number 0 for the duration of each milestone. **Note:** Do not enter numbers in the cells under *Duration* (Column C) for other tasks (summary tasks and **subtask**)

Step 5- In Column D (*Start*), select the cell of each **subtask** and milestone- all non summary tasks, and enter the task starting date (**month/day/year-e.g. 10/1/95**)

Step 6- In Column E (*End*), select the cell of each **subtask** and milestone- all non summary tasks, and enter the task ending date (**month/day/year-e.g. 12/1/97**). Note: For each milestone task enter the same date for the starting date as the ending date (Column E-End).

Step 7- In Column F (*Resource Type Units*), select the cell of each **subtask** (ignore all summary tasks & milestones), and enter the type of resource for the **subtask**. Using the listing of resources in the **Resource** sheet (*day-tmp.xls* Workbook), copy (**Ctrl + C** key function) the resource name in Column A and paste (**Ctrl + V** key function) it in the associated **subtask** cell in Column F; and repeat this copy and paste operation until all the resources for the **subtask** have been entered. **Note:** resources should be separated by a *comma* and *space* (e.g. *BPA Engineer, BPA Biology, BPA Environment, Tribal*)

Step 8-In Column F (*Resource Type Units*), assign the number of units for each resource type per **subtask** by inserting a bracketed **number ([2])**- without a space separation- after each resource **type** (e.g. *BPA Engineer[1], Tribal[.5]*). **Note:** Refer to “**Preparation Of A Subtask Budget For A New Program/Project Using Resource Name, Max Units And Cost/Use Information**” (Pages 40 - 41).

Step 9- In Column *G (Task Description/Notes)*, select the cell associated with each task (all tasks & milestones) and entered brief information describing the task/milestone activity. (See Figure 7)

Figure 7. View Of The Input Folder For The New Program/Project Workbook File, *day-tmp.xls*, Illustrating The Scope, Schedule And Resources

ID	Task Name	Duration	Start	Finish	Resource Type (Units)
1	DAY PROGRAM				
2	NEPA/EIS				
3	Draft EIS		10/1/95	7/30/96	BPA Engineer(05), BPA Biology(05), BPA Environment(05), Tribal(05)
4	Public Release of Final EIS and ROD		7/31/96	9/30/96	BPA Engineer(05), BPA Biology(05), BPA Environment(05), Tribal(05)
5	ROD Completed	0	9/30/96	9/30/96	
6	Critical Task Components To Design/Construction				
7	Hydrologic Testings		4/1/96	11/1/99	Tribal(2)
8	Lands Aquisition		10/1/95	4/1/00	BPA Capital(8)
9	BioSpecifications		5/1/96	11/1/99	BPA Biology(25), BPA Engineer(25), Tribal(1.5)
10	Cherry Day Facilities Complex				
11	Central Facility				
12	Design		5/1/96	5/1/97	BPA Biology(34), BPA Engineer(6.1), Tribal(34)
13	Construction & Shakedown		5/2/97	12/1/98	BPA Capital(24.4)
14	Operational Ready	0	12/1/98	12/1/98	
15	Yocum Day Cr. Satellite				
16	Design		7/1/96	1/1/97	BPA Biology(15), BPA Engineer(31), Tribal(15)
17	Construction & Shakedown		1/2/97	7/1/97	BPA Capital(1.22)
18	Operational Ready	0	7/1/97	7/1/97	
19	Cedar Day Satellite				
20	Design		7/1/97	1/1/98	BPA Biology(02), BPA Engineer(34), Tribal(02)
21	Construction & Shakedown		1/2/98	7/1/98	BPA Capital(1.37)
22	Operational Ready	0	7/1/98	7/1/98	
23	Sweet Water Days Facilities Complex				
24	Central Facility				
25	Design		4/1/97	1/1/98	BPA Biology(03), BPA Engineer(44), Tribal(03)
26	Construction & Shakedown		1/2/98	10/1/98	BPA Capital(1.76)
27	Operational Ready	0	10/1/98	10/1/98	
28	Luke Day Satellite				
29	Design		11/1/97	4/1/98	BPA Biology(02), BPA Engineer(38), Tribal(02)
30	Construction & Shakedown		4/2/98	10/1/98	BPA Capital(1.54)
31	Operational Ready	0	10/1/98	10/1/98	
32	Nevada Day Satellite				
33	Design		11/1/97	4/1/98	BPA Biology(02), BPA Engineer(45), Tribal(02)
34	Construction & Shakedown		4/1/99	10/1/99	BPA Capital(1.8)
35	Operational Ready	0	10/1/99	10/1/99	
36	Mill Day Satellite				
37	Design		11/1/98	4/1/99	BPA Biology(02), BPA Engineer(45), Tribal(02)
38	Construction & Shakedown		4/2/99	10/1/99	BPA Capital(1.8)
39	Operational Ready	0	10/1/99	10/1/99	
40	H. Day Valley Satellite				
41	Design		11/1/99	4/1/00	BPA Biology(02), BPA Engineer(45), Tribal(02)
42	Construction & Shakedown		4/2/00	10/1/00	BPA Capital(1.8)
43	Operational Ready	0	10/1/00	10/1/00	

Step 10- Save changes to the Input folder (*day-tmp.xls*) by selecting **Save** (Menu = **File**). You have now completed revision of the Input folder (*day-tmp.xls* file) which is prepared for subsequent DDE with the *Task Sheet* of the new MS Project 4.0 program/project file (*day-tmp.mpp*)

Procedure 7: *Modifying and preparing the new program/project MS Project 4.0 file (day-tmp.mpp) for a Dynamic Data Exchange (DDE) between the MS Excel Input folder (day-tmp.xls Workbook) and the Task Sheet of the MS Project 4.0 file (day-tmp.mpp)*

Step 1- Switch from a Excel 5.0 screen display (day-tmp.xls) to MS Project 4.0 screen display (day-tmp.mpp) using the **Alt + Tab** keys operation to display **Microsoft Project-DA Y-TMP.MPP**

Step 2- Select the **Task Sheet** view of day-tmp.mpp file by selecting **More Vii** (Menu = view), and clicking on **Task Sheet** and then clicking the **Apply** button

Step 3- Review and modify the new program/project **Project** and **Document** folders by selecting **Summary Info** (Menu = **File**); click on **Project** folder and enter either the starting date of the first **subtask** or the date of the program/project **Starts milestone** in the **Start Date box**; then select **Project Start Date** in **Schedule From**; next click on **Document** folder and enter pertinent information regarding the new program/project; and click the OK button

Step 4- Save changes to the day-tmp.mpp file by selecting **Save** (Menu = **File**). You have now completed the preparation and revision of the day-tmp.mpp file, and the new MS Project 4.0 program/project tile (day-tmp.mpp) is prepared for subsequent DDE between the **Resource Sheet (day-tmp.mpp)** and Input folder (day-tmp.xls Workbook)

Procedure 8: *Establishment of the Scope (Tasks), Schedule and Resource Information, and creation of a Dynamic Data Exchange (DDE) between the MS Excel 5.0 Input folder (day-tmp.xls Workbook) and the MS Project 4.0 Task Sheet of the day-tmp.mpp file*

Step 1- Switch from the MS Project 4.0 screen display (day-tmp.mpp) to Excel 5.0 screen display (day-tmp.xls) using the **Alt + Tab** keys operation to display **Microsoft Excel-DA Y- TMP.XLS**

Step 2- Open the **Input** folder of the new workbook file (day-tmp.xls), by clicking the **Input** tab

Step 3- Select the cell block **B2:F49** of the Input folder, and copy selection using **Ctrl + C** keys operation

Step 4- Switch from the Excel 5.0 screen display (day-tmp.xls) to the MS Project 4.0 screen display (day-tmp.mpp) using the **Alt + Tab** keys operation to display **Microsoft Project-DAY-TMPMPP**

Step 5- Select the **Task Sheet** view of day-tmp.mpp file from **View** of the Menu

Step 6- Select the block of column cells Task Name, Duration, Start, Finish and Resource **Types[Units]** from Line 1 through Line 48 of the **Task Sheet view**. Next select **Paste Special** (Menu = **Edit**), and then select **Paste Link** and click on OK button. **Note:** Small triangles will appear in lower right hand of each cell (See Figure 8, Page 47)

Step 7- Save changes to the **Task Sheet** by selecting **Save** (Menu = **File**). You have now successfully transferred the **Scope, Schedule** and **Resource** Information of the **Input** folder (day-tmp.xls file), and established a DDE between the new Project 4.0 file (day-tmp.mpp) and Excel 5.0 Workbook file (day-tmp.xls)

Figure 8. Partial View Of The Task Sheet For The New Program/Project File, *day-tmp.mpp*, Illustrating The Scope, Schedule And Resources

ID	Task Name	Duration	Start	Finish	Resource Types[Units]
1	DAY PROGRAM	1305d	10/2/95	10/1/00	
2	NEPA/EIS	290d	10/2/95	9/30/96	
3	Draft EIS	216d	10/2/95	7/29/96	BPA Engineer[0.05],BPA Biology[0.05],BPA Envir
4	Public Release of Final EIS and ROD	43d	7/31/96	9/27/96	BPA Engineer[0.05],BPA Biology[0.05],BPA Envir
5	ROD Completed	0d	9/30/96	9/30/96	
6	Critical Task Components To Design/Construction	1175	10/2/95	3/31/00	
7	Hydrologic Testings	935d	4/1/96	10/29/99	Tribal[2]
8	Lands Aquisition	1175	10/2/95	3/31/00	BPA Capital[0.8]
9	BioSpecifications	913d	5/1/96	10/29/99	BPA Biology[0.25],BPA Engineer[0.25],Tribal[1.5]
10	Cherry Day Facilities Complex	674d	5/1/96	12/1/98	
11	Central Facility	674d	5/1/96	12/1/98	
12	Design	261d	5/1/96	4/30/97	BPA Biology[0.34],BPA Engineer[6.1],Tribal[0.34]
13	Construction & Shakedown	412d	5/2/97	11/30/98	BPA Capital[24.4]
14	Operational Ready	0d	12/1/98	12/1/98	
15	Yocosa Day Cr. Satellite	261d	7/1/96	7/1/97	
16	Design	132d	7/1/96	1/1/9	BPA Biology[0.15],BPA Engineer[0.31],Tribal[0.15]
17	Construction & Shakedown	128d	1/2/97	6/30/97	BPA Capital[1.22]
18	Operational Ready	0d	7/1/97	7/1/97	
19	Cedar Day Satellite	261d	7/1/97	7/1/98	
20	Design	132d	7/1/97	12/31/97	BPA Biology[0.02],BPA Engineer[0.34],Tribal[0.02]
21	Construction & Shakedown	128d	1/2/98	6/30/98	BPA Capital[1.37]
22	Operational Ready	0d	7/1/98	7/1/98	
23	Sweet Water Days Facilities Complex	914d	4/1/97	10/1/00	
24	Central Facility	392d	4/1/97	10/1/98	
25	Design	197.01	4/1/97	1/1/98	BPA Biology[0.03],BPA Engineer[0.44],Tribal[0.03]
26	Construction & Shakedown	194d	1/2/98	9/30/98	BPA Capital[1.79]
27	Operational Ready	0d	10/1/98	10/1/98	
28	Lukes Day Satellite	238d	11/3/97	10/1/98	
29	Design	107d	11/3/97	4/1/98	BPA Biology[0.02],BPA Engineer[0.38],Tribal[0.02]
30	Construction & Shakedown	130d	4/2/98	9/30/98	BPA Capital[1.54]
31	Operational Ready	0d	10/1/98	10/1/98	
32	Newsome Day Satellite	499d	11/3/97	10/1/99	
33	Design	107d	11/3/97	3/31/98	BPA Biology[0.02],BPA Engineer[0.45],Tribal[0.02]
34	Construction & Shakedown	131	4/1/99	9/30/99	BPA Capital[1.8]
35	Operational Ready	0d	10/1/99	10/1/99	
36	Mill Day Satellite	239d	11/2/98	10/1/99	
37	Design	108.02d	11/2/98	4/1/99	BPA Biology[0.02],BPA Engineer[0.45],Tribal[0.02]
38	Construction & Shakedown	130d	4/2/99	9/30/99	BPA Capital[1.8]
39	Operational Ready	0d	10/1/99	10/1/99	
40	N. Day Valley Satellite	240d	11/1/9	10/1/00	
41	Design	110	11/1/9	3/31/00	BPA Biology[0.02],BPA Engineer[0.45],Tribal[0.02]
42	Construction & Shakedown	130d	4/3/00	9/29/00	BPA Capital[1.8]
43	Operational Ready	0d	10/1/00	10/1/00	
44	Task 44	1	10/2/95	10/2/95	
45	Task 45	1	10/2/95	10/2/95	
46	Task 46	1	10/2/95	10/2/95	
47	Task 47	1	10/2/95	10/2/95	
48	Task 48	1	10/2/95	10/2/95	

Procedure 9: Modifying and preparing the new program/project MS Project 4.0 file (*day-tmp.mpp*) for a Dynamic Data Exchange (DDE) between the Task Sheet of the MS Project 4.0 file (*day-tmp.mpp*) and the MS Excel 5.0 Output folder (*day-tmp.xls* Workbook)

Step 1- Display the Task Sheet view (Menu = view) of *day-tmp.mpp* file of MS Project 4.0

Step 2- Outline the tasks names in Task Name column according to *summary tasks* and *subtasks/milestones* using Outdent (<=) and Indent (=>)arrow buttons (located in left hand corner of the second row of tool buttons); to subordinate a task or set of tasks, select the task (s) and click the Indent button (=>); repeat this operation until the scope of tasks have been outline as *summary tasks* with *subtasks/milestones*. Note: Highlight

and demote all *summary tasks*, *subtasks* and *milestones* below the *Program/Project Title* (the first row task entry).

Step 3- Save changes to the **Task Sheet** (*day-tmp.mpp*) by selecting **Save** (Menu = **File**). You have now successfully prepared the **Task Sheet** for establishing a DDE between the new Project 4.0 file (*day-tmp.mpp*) and the MS Excel **Output** folder (*day-tmp.xls* Workbook)

Procedure 10: Establishing Dynamic Data Exchange (DDE) between the Task Sheet of the MS Project 4.0 file (day-tmp.mpp) and the MS Excel 5.0 Output folder (day-tmp.xls Workbook)

Step 1- Select the block of column cells under **Duration**, **Start**, **Finish Resource Types**[Units], and **Estimated Budget** from Line 1 through Line 48 of the *Task Sheet* view, and copy the selection using **Ctrl + C** keys operation

Step 2- Switch from MS Project 4.0 screen display (*day-tmp.mpp*) to the Excel 5.0 screen display (*day-tmp.xls*) using the **Alt + Tab** keys operation to display **Microsoft Excel-DAY-TMP.XLS**

Step 3- Open the **Output** folder of the new workbook file (*day-tmp.xls*), by clicking the **Output** tab

Step 4- Select the cell block **C2:I49** of the **Output** folder; then select **Paste Special** (Menu = **Edit**), next select **Paste Link**, click on **Text** and then click **OK** button (See Figure 9, Page 49)

Step 5- Save changes to the **Output** folder (*day-tmp.xls*) by selecting **Save** (Menu = **File**). You have now established a DDE between the Project 4.0 **Task Sheet** (*day-tmp.mpp*) and the Excel 5.0 **Output** folder (*day-tmp.xls* Workbook file)

Procedure 11: Closing and saving the new program/project files in MS Project 4.0 (day-tmp.mpp) and MS Project 5.0 (day-tmp.xls)

Step 1- Closing & Saving MS Project 4.0 (*day-tmp.mpp*); select **Close** (Menu = **File**); click on **Save "DAY-TMP.MPP" without baseline**, and click **OK** button

Step 2- Closing & Saving MS Project 5.0 (*day-tmp.xls*); select **Close** (Menu = **File**); click on **Yes** button to question **"Save Changes In DAY-TMP.XLS?"**

Congratulations! You have created a new program/project using MS Project 4.0 and MS Project 5.0 template files to generate and illustrate the plan and management tracking documents for the new program/project; these files have Dynamic Data Exchange (DDE) linkages, which **allow** you to revise and refine the program/project at a later in order to reflect editions in the scope, schedule, resources/budgets of the program/project. Save these files (*day-tmp.xls* and *day-tmp.mpp*) on a disc or backup **tape** to **preserve** the original file templates.

For revising and editing the program/project files (*day-tmp.mpp* and *day-tmp.xls*), please refer to following sections, **Revising The Schedule And Resource Types/Units Of The Planning And Tracking Documents For A Program/Project**, and **Revising The Scope (Adding And Deleting Tasks) Of The Planning & Tracking Documents For A Program/Project**, which state the procedures and steps for revising and incorporating new information/data in Project 4.0 and Excel 5.0 program/project files (Pages 50 - 51).

The section entitled ‘General Accounting For A Program/Project: Entry Of Invoice Billing Charges Against Subtasks Budgets’ explains the procedures and steps of a tool for tracking program/project budgets and costs (Pages 51 - 52).

The section entitled “Illustration And Formatting Of The Gantt Chart And Other Program/Project Documents For Dissemination” instructs the user in the procedures and steps for generating illustrative documents that are disseminated for program/project management and tracking purposes (Pages 52 - 53).

Figure 9. View Of The Output Folder For The New Program/Project Workbook File, *day-tmp.xls*, Illustrating The Project Plan (e.g. Scope, Schedule And Resources) Per DDE With Servers *day-tmp.mpp* And Accounting Folder (*day-tmp.xls*) Files

ID	Task Name	Duration	Start	Finish	Resource Type (Units)	Est. Budget	Expenditures To Date	Est. Budget Remaining
1	DAY PROGRAM	1305	10/2/95	10/1/00		\$10,586,000	\$0	\$10,586,000
2	NEPA/EIS	280	10/2/95	9/30/96		\$40,000	\$0	\$40,000
3	Draft EIS	216	10/2/95	7/29/96	BPA Engineer(0.05),BPA Biology(0.06),BPA Environment(\$20,000	\$0	\$20,000
4	Public Release of Final EIS and ROD	43	7/3/96	9/27/96	BPA Engineer(0.05),BPA Biology(0.05),BPA Environment(\$20,000	\$0	\$20,000
5	ROD Completed	0	9/30/96	9/30/96		\$0	\$0	\$0
6	Critical Task Components To Design/Construction	1175	10/2/95	3/3/00		\$800,000	\$0	\$800,000
7	Hydrologic Testings	935	4/1/96	10/29/99	Tribal(2)	\$200,000	\$0	\$200,000
8	Leads Acquisition	1175	10/2/95	3/3/00	BPA Capital(0.8)	\$200,000	\$0	\$200,000
9	BioSpecifications	913	5/1/96	10/29/99	BPA Biology(0.25),BPA Engineer(0.25),Tribal(1.5)	\$200,000	\$0	\$200,000
10	Cherry Day Facilities Complex	674	5/1/96	12/1/98		\$7,524,500	\$0	\$7,524,500
11	Central Facility	674	5/1/96	12/1/98		\$6,778,000	\$0	\$6,778,000
12	Design	261	5/1/96	4/30/97	BPA Biology(0.34),BPA Engineer(0.1),Tribal(0.34)	\$678,000	\$0	\$678,000
13	Construction & Shutdown	412	5/2/97	11/30/98	BPA Capital(24.4)	\$6,100,000	\$0	\$6,100,000
14	Operational Ready	0	12/1/98	12/1/98		\$0	\$0	\$0
15	Youse Day Cr. Satellite	261	7/1/96	7/1/97		\$366,000	\$0	\$366,000
16	Design	132.002833	7/1/96	1/1/97	BPA Biology(0.15),BPA Engineer(0.31),Tribal(0.15)	\$61,000	\$0	\$61,000
17	Construction & Shutdown	128	1/2/97	6/30/97	BPA Capital(1.22)	\$305,000	\$0	\$305,000
18	Operational Ready	0	7/1/97	7/1/97		\$0	\$0	\$0
19	Cedar Day Satellite	261	7/1/97	7/1/98		\$380,500	\$0	\$380,500
20	Design	131.9979167	7/1/97	12/31/97	BPA Biology(0.02),BPA Engineer(0.34),Tribal(0.02)	\$38,000	\$0	\$38,000
21	Construction & Shutdown	128	1/2/98	6/30/98	BPA Capital(1.37)	\$342,500	\$0	\$342,500
22	Operational Ready	0	7/1/98	7/1/98		\$0	\$0	\$0
23	Sweet Water Days Facilities Complex	914	4/1/97	10/1/00		\$2,421,500	\$0	\$2,421,500
24	Central Facility	392	4/1/97	10/1/98		\$497,500	\$0	\$497,500
25	Design	107.0145833	4/1/97	11/1/98	BPA Biology(0.03),BPA Engineer(0.44),Tribal(0.03)	\$50,000	\$0	\$50,000
26	Construction & Shutdown	104	1/2/98	9/30/98	BPA Capital(1.76)	\$447,500	\$0	\$447,500
27	Operational Ready	0	10/1/98	10/1/98		\$0	\$0	\$0
28	Lukes Day Satellite	238	11/3/97	10/1/98		\$427,000	\$0	\$427,000
29	Design	107.002833	11/3/97	4/1/98	BPA Biology(0.02),BPA Engineer(0.38),Tribal(0.02)	\$42,000	\$0	\$42,000
30	Construction & Shutdown	130	4/2/98	9/30/98	BPA Capital(1.54)	\$385,000	\$0	\$385,000
31	Operational Ready	0	10/1/98	10/1/98		\$0	\$0	\$0
32	Newsome Day Satellite	498	11/3/97	10/1/99		\$499,000	\$0	\$499,000
33	Design	107	11/3/97	3/3/99	BPA Biology(0.02),BPA Engineer(0.45),Tribal(0.02)	\$49,000	\$0	\$49,000
34	Construction & Shutdown	131	4/1/99	9/30/99	BPA Capital(1.8)	\$450,000	\$0	\$450,000
35	Operational Ready	0	10/1/99	10/1/99		\$0	\$0	\$0
36	Mill Day Satellite	238	11/2/98	10/1/99		\$499,000	\$0	\$499,000
37	Design	106.0208333	11/2/98	4/1/99	BPA Biology(0.02),BPA Engineer(0.45),Tribal(0.02)	\$49,000	\$0	\$49,000
38	Construction & Shutdown	130	4/2/99	9/30/99	BPA Capital(1.8)	\$450,000	\$0	\$450,000
39	Operational Ready	0	10/1/99	10/1/99		\$0	\$0	\$0
40	N Day Valley Satellite	240	11/1/99	10/1/00		\$499,000	\$0	\$499,000
41	Design	110	11/1/99	3/3/00	BPA Biology(0.02),BPA Engineer(0.45),Tribal(0.02)	\$49,000	\$0	\$49,000
42	Construction & Shutdown	130	4/3/00	9/29/00	BPA Capital(1.8)	\$450,000	\$0	\$450,000
43	Operational Ready	0	10/1/00	10/1/00		\$0	\$0	\$0

Revising The Schedule And Resource Types/Units Of The Planning & Tracking Documents For A Program/Project

Procedure 1: Opening MS Project 4.0 and MS Excel 5.0 template files for revising and editing an existing program/project

Step 1- Open the MS Project 4.0 and MS Excel 5.0 directories from **Program/project Manager** by double clicking program icons (MS Project and MS Excel)

Step 2- Using **Alt + Tab** keys operation- depress the **Alt + Tab** keys to display **Microsoft Project-Project 1**; click on **Open** (Menu = **F**ile) and double click sub-directory **pgrm-tmp.mpp** (winproj directory) and open the program/project file (**day-tmp.mpp** file); click **Yes** button for the illustrated **dialogue box “DAY-TMP.MPP”** contains linked information. Reestablish links? and click the **Yes** button for the second **dialogue box** stating **Microsoft Excel This document contains links. Re-establish links?** (Note: This step completes the re-establishment of all linkages of **day-tmp.mpp** file and **day-tmp.xls** workbook sheets, and makes the **day-tmp.xls** workbook accessible for opening from **day-tmp.mpp** file)

Step 3: Click **Edit** (Menu = **E**dit), click **Links** and select **..DAY-TMP.XLS!Input!..** folder (first **Worksheet** item under **Type** column), by clicking **Open Source** button. The **Input** folder of the **day-tmp.xls** workbook is opened.

Procedure 2: Revision of the RESOURCE TYPES/UNITS (associated with various tasks) of the a program/project plan and tracking Documents using DDE links (Project 4.0 day-tmp.mpp file & Excel 5.0 day-tmp.xls!Input!.. file)

Step1- Using **Alt + Tab** keys operation, display **Microsoft Project- DAY-TMP.MPP**, click **Insert** (Menu = **I**nsert), click **Task Information**, click **Resources** folder of **Multiple Task Information**, click **arrow** to left of **Duration Type** and select **Fixed Duration**, and click **OK** button

Step2- Using **Alt + Tab** keys operation, display **Microsoft Excel-DAY-TMP.XLS**; click on the **Input** tab to open the folder used for revising Resource Types/Units. Make revisions to Resource Type[unit] of each **subtask** using instructions in **Step 7 (Procedure 6** for “**Creating & Modifying Planning And Tracking Documents For A New Program/Project**” section, page 44). **Note:** If revisions to or addition to the listing of program/project Resources is required, follow **Steps 1-3 (Procedure 4** of “**Creating & Modifying Planning And Tracking Documents For A New Program/Project**” section, Pages 42 - 43)

Step 3 : Closing and saving program/project files in MS Project 4.0 (**day-tmp.mpp**) and MS Project 5.0 (**day-tmp.xls**). For closing & saving the revised Project 4.0 **day-tmp.mpp** file select **Close** (Menu = **F**ile); click on **Save “DAY-TMP.MPP” without baseline**, and click **OK** button. For closing & saving revised Project 5.0 **day-tmp.xls** file; select **close** (Menu = **F**ile); click on **Yes** button to question “**Save Changes In DAY-TMP.XLS?**”

Procedure 3: Revisions of the SCHEDULE (Start and End dates) of the program/project Plan and Tracking Documents using DDE links (Project 4.0 day-tmp.mpp file & Excel 5.0 day-tmp.xls!Input!.. file)

Step 1- Using **Alt + Tab** keys operation, display **Microsoft Project- DAY-TMP.MPP**, click **Insert** (Menu = **I**nsert), click **Task Information**, click **Resources** folder of **Multiple Task Information**, click **arrow** to left of **Duration Type** and select **Resource Driven**, and click **OK** button

Step 2- Using **Alt + Tab** keys operation, display **Microsoft Excel-DAY-TMP.XLS**; click on the **Input** tab to open the folder used for revising the Schedule (Start and/or End Dates. Make revisions to Resource Type[unit] using instructions of **Steps 5 and 6 (Procedure 6** of “Creating & Modifying Planning And Tracking Documents For A New Program/Project” section, page 44). **Note:** Follow **Step 4 (Procedure 6** of “Creating Planning And Tracking Documents For A New Program/Project” section, Page 44), if an existing **subtask** is designated as a milestone

Step 3 : Closing and saving a Program/project files in MS Project 4.0 (*day-fmp.mpp*) and MS Project 5.0 (*day-tmp.xls*). For closing & saving the revised Project 4.0 *day-tmp.mpp* file; select **Close** (Menu = **File**); click on **Save “DAY-TMP.MPP” without baseline**, and click **OK** button. For closing & saving revised Project 5.0 *day-tmp.xls* file; select **Close** (Menu = **File**); click on Yes button to question “**Save Changes In DAY-TMP.XLS?**”

Revising The Scope (Adding And Deleting Tasks) Of The Planning & Tracking Documents For A Program/Project

Revising the scope of an existing program/project, in terms of adding and deleting tasks (supra-, summary tasks and milestones, is best handled by using the procedures and steps detailed in the previous sections:

Preparation Of The Scope For A New Program/Project For Import To An Excel 5.0 Workbook” (Pages 38 - 40)

Preparation Of A Subtask Budget For A New Program/Project Using Resource Name, Max Units and Cost Information” (Pages 40- 41)

Instructions For Creating & Modifying Planning, And Tracking Documents Used In The Management And Budgeting Of A New Program Project” (Pages 42 - 49)

It is recommended that the files of a revised program/project should be save discriminated from the existing program/project files. For example *day-tmp.mpp* and *day-tmp.xls* (the existing program/project file templates) respectively can be saved as *day-* and *day-rv1.xls* (the revised program/project files).

Procedure: Closing and saving the revised program/project files in MS Project 4.0 (*day-rv1.mpp*) and MS Project 5.0 (*day-rv1.xls*)

Step1- Closing & Saving MS Project 4.0 (*day-rv1.mpp*); select **Close** (Menu = **File**); click on **Save “DAY-RV1.MPP” without baseline**, and click **OK** button

Step2- Closing & Saving MS Project 5.0 (*day-rv1.xls*); select **Close** (Menu = **File**); click on Yes button to question “**Save Changes In DAY-RV1.XLS?**”

General Accounting Document For A Program/Project: Entry Of Invoice Billing Charges Against Subtasks Budgets

A simple accounting routine has be established in the process for facilitating the entry of the invoice billing charges for the **subtasks** of a Program/Project. These invoice billing entries are calculated and exchanged (DDE) between the Accounting and Output folders of the MS Excel 5.0 workbook file (e.g. *day-tmp.xls*), in order to display budgetary and expenditure information of the Program/Project and associated tasks (summary tasks & subtasks) for management and tracking purposes.

Procedure 1: Opening the MS Excel 5.0 Accounting folder (*day-tmp.xls*)

Step1- From **Program Manager** view, double click on the **MS Office** icon; next double click on **Microsoft Excel** icon; click on **File**, click on **Open**, then double click on **prgm-tmp.xls** folder; and finally double click on *day-tmp.xls* under the File **Name** box. You have opened the **DAY-TMPXLS** workbook

Step 2- Open the **Accounting** folder of the MS Excel 5.0 Workbook file *day-tmp.xls* by clicking on the tab entitled **Accounting**

Procedure 2: *Entering data in the Accounting folder (day-tmp.xls workbook), with respect to invoice charges against subtasks*

Step 1- Enter Invoice Billing charges for each **subtask** using the Excel procedures for selecting cells and entering data for each invoice amount (e.g. Invoice # Charge) in **Columns C - Z** of each **subtask** row (Figure 10)

Step 2- Save changes to the **Accounting** folder (*day-tmp.xls*) by selecting **Save** (Menu = **File**). You have now entered the invoice billing data for the **subtasks** which is automatically calculated and exchanged (DDE) the data between the **Output** folder (*day-tmp.xls*)

Figure 10. View Of The Accounting Folder For The New Program/Project Workbook File, *day-tmp.xls*, Illustrating The Project Plan (e.g. Scope, Schedule And Resources) Per DDE With Server *day-tmp.xls* (Output Folder)

		Date : Contract No.	Date : Contract No.	Date : Contract No.	Date : Contract No.	Date : Contract No.	Date : Contract No.	Date : Contract No.	Date : Contract No.	Total Amount Invoiced To Date
ID	Task Name	Invoice Amount	Invoice Amount	Invoice Amount	Invoice Amount	Invoice Amount	Invoice Amount	Invoice Amount	Invoice Amount	
1	DAY PROGRAM									0
2	NEPA/EIS									0
3	Draft EIS									0
4	Public Release of Final EIS and ROD									0
5	ROD Completed									0
6	Critical Task Components To Design/Construction									0
7	Hydrologic Testings									0
8	Lands Acquisition									0
9	BioSpecifications									0
10	Cherry Day Facilities Complex									0
11	Central Facility									0
12	Design									0
13	Construction & Shakedown									0
14	Operational Ready									0
15	Yoon Day Cr. Satellite									0
16	Design									0
17	Construction & Shakedown									0
18	Operational Ready									0
19	Cedar Day Satellite									0
20	Design									0
21	Construction & Shakedown									0
22	Operational Ready									0
23	Swamp Water Days Facilities Complex									0
24	Central Facility									0
25	Design									0
26	Construction & Shakedown									0
27	Operational Ready									0
28	Lakes Day Satellite									0
29	Design									0
30	Construction & Shakedown									0
31	Operational Ready									0
32	Newcome Day Satellite									0
33	Design									0
34	Construction & Shakedown									0
35	Operational Ready									0
36	Mill Day Satellite									0
37	Design									0
38	Construction & Shakedown									0
39	Operational Ready									0
40	N. Day Valley Satellite									0
41	Design									0
42	Construction & Shakedown									0
43	Operational Ready									0
44	Task 44									0
45	Task 45									0
46	Task 46									0
47	Task 47									0
48	Task 48									0

Illustration And Formatting Of The Gantt Chart And Other Program/Project Documents For Dissemination

Illustration Of The Program/Project Scope, Schedule And Resources Using A Gantt Chart For MS Project 4.0 day-tmp. mpp File

Procedure 1: *Opening the MS Project 4.0 day-tmp.mpp file in the Gantt Chart view*

Step 1- From **Program Manager** view, double click on the **MS Office** icon; next double click on **Microsoft Project** icon; click on **File**, click on **Open**, then double click on

prgm-tmp.mpp folder; and finally double click on *day-tmp.mpp* under the File **Name** box. You have opened the **DAY-TMP.MPP** file

Step 2- Display the Gantt Chart view of the *day-tmp.mpp* file by clicking **View** (Menu = **view**), and then click on **Gantt Chart**. The Gantt Chart of the *day-tmp.mpp* file is displayed and ready of custom formatting.

Procedure 2: Custom Formatting of the Gantt Chart view of the day-tmp.mpp file

Step 1- Click on **Format** (Menu = **Format**), and then select and click on the feature (e.g. **Font, Bar, Timescale**, etc.) that you want to use for customizing the display of the Gantt Chart of the *day-tmp.mpp* file, and continue to select and click on the choices to initiate and complete the operations for customizing a view of the Gantt Chart

Step 2- Format the Gantt Chart page (Page, Margin, Header, Footer, Legend and/or View) by the clicking on **File** (Menu = **File**); then select and click on **Page Setuu...**; select the appropriate folder (s) and click the choices to initiate and complete the operations for customizing the page of the Gantt Chart (*day-tmp.mpp* file)

Step 3- Save the customized formats (the view and page setup) of Gantt Chart (*day-tmp.mpp* file) by clicking **Save** (Menu = **File**)

Formatting The MS Excel 5.0 Documents (*day-tmp.xls* Workbook) Of The Program/Project For Dissemination

Procedure 1: Opening the MS Excel 5.0 Workbook (day-tmp.xls) and its folders

Step 1 - From **Program Manager** view, double click on the **MS Office** icon; next double click on **Microsoft Excel** icon; click on **File**, click on **Open**, then double click on **prgm-tmp.xls** folder; and finally double click on *day-tmp.xls* under the File **Name** box. You have opened the **DAY-TMP.XLS** workbook

Step 2- Open the appropriate folder (**Resources, Input, Output** or **Accounting**) of the MS Excel 5.0 Workbook *day-tmp.xls* by clicking on the folder tab; the Workbook folder (**Resources, Input, Output** or **Accounting**) is displayed and ready of custom formatting

Procedure 2: Custom Formatting of the MS Excel 5.0 Workbook folders (day-tmp.xls)

Step 1- For Formatting the Workbook folder page (Page, Margin, Header, Footer, Legend and/or View), click on **File** (Menu = **File**); then select and click on **Page Setuu...**; select the appropriate folder (**Resources, Input, Output** or **Accounting**) of the Workbook (*day-tmp.xls* file); click on the tab inserts of a workbook folder and select (click on) the choices to initiate and complete the operations for customizing the page of the Workbook folder (*day-tmp.xls* file)

Step 2- Save the customized formats (the page setups) of Workbook folders (*day-tmp.xls* file) by clicking **Save** (Menu = **File**).

Note

Electronic copies of the templates for MS Project 4.0 and MS Excel 5.0 files (*temp-tmp.mpp, temp-tmp.xls, day-tmp.mpp*, and *day-tmp.xls*) can be obtained accessed either on the BPA web site or by written request to:

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